CELL / MODEL NAME	DESCRIPTION	DATE
BSD-1	Bar splicer details	10/22/2004
DS-1	Steel drainage scupper with bituminous surface	10/22/2004
DS-2	Cast iron drainage scupper with bituminous surface	10/22/2004
DS-3	Steel drainage scupper without bituminous surface	10/22/2004
DS-4	Cast iron drainage scupper without bituminous surface	10/22/2004
EJ-BJS (1 of 2)	Bridge Joint System (Expansion) Sheet 1 of 2	10/22/2004
EJ-BJS (2 of 2)	Bridge Joint System (Expansion) Sheet 2 of 2	10/22/2004
EJ-CS	Neoprene Expansion Joint	10/22/2004
E-S	Top of slab elevations	10/22/2004
FJ-BJS	Bridge Joint System (Fixed)	10/22/2004
G-1	Plate girder details	10/22/2004
I-2	Rocker bearings	10/22/2004
I-2-B	Rocker bearings	10/22/2004
I-2-C	Rocker bearings, diaphragms and splice details	10/22/2004
I-2-D	Diaphragm and splice details	10/22/2004
I-2-E1	Type I elastomeric bearing	10/22/2004
I-2-E2	Type II elastomeric bearing	10/22/2004
I-2-E3	Type III elastomeric bearing	10/22/2004
I-2-G	Rocker bearings	10/22/2004
R-20	Type L (Two element aluminum rail)	10/22/2004
R-23A	Type S1 (Single element side mounted rail)	10/22/2004
R-24A	Type T-1 (Two element side mounted rail)	10/22/2004
R-25	Temporary bridge rail	10/22/2004
R-26	Type TP-1 (Triple element side mounted rail)	10/22/2004
R-27	Temporary concrete barrier	10/22/2004
R-28	Pedestrian railing	10/22/2004
R-29	Bicycle railing	10/22/2004
R-30	Type WT steel railing	10/22/2004
R-31	Steel bridge rail (Curb mounted) 2399	10/22/2004
R-32	Bridge fence railing (parapet mounted)	10/22/2004
R-33	Bridge fence railing (sidewalk mounted)	10/22/2004
R-34	Type SM steel bridge rail (side mounted)	10/22/2004
S-1-0 no skew	Super Plan & X-sect no skew (3 to 6 span steel bridge)	10/22/2004
S-1-D	Superstructure details (3 to 6 span steel bridge)	10/22/2004
S-1-L greater than 15 degrees	Super Plan & X-sect > 15 degrees ahead left (3 to 6 span steel bridge)	10/22/2004
S-1-L less than 15 degrees	Super Plan & X-sect <15 degrees ahead left (3 to 6 span steel bridge)	10/22/2004

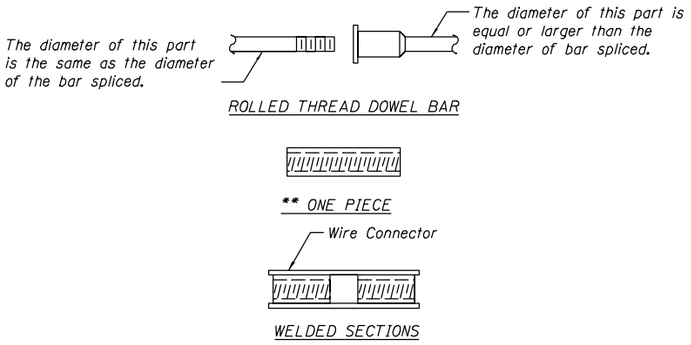
CELL / MODEL NAME	DESCRIPTION	DATE
S-1-R greater than 15 degrees	Super Plan & X-sect > 15 degrees ahead right (3 to 6 span steel bridge)	10/22/2004
S-1-R less than 15 degrees	Super Plan & X-sect < 15 degrees ahead right (3 to 6 span steel bridge)	10/22/2004
S-2-0 no skew	Super Plan & X-sect no skew (2 span steel bridge)	10/22/2004
S-2-D	Superstructure details (2 span steel bridge)	10/22/2004
S-2-L greater than 30 degrees	Super Plan & X-sect > 30 degrees ahead left (2 span steel bridge)	10/22/2004
S-2-L less than 30 degrees	Super Plan & X-sect < 30 degrees ahead left (2 span steel bridge)	10/22/2004
S-2-R greater than 30 degrees	Super Plan & X-sect > 30 degrees ahead right (2 span steel bridge)	10/22/2004
S-2-R less than 30 degrees	Super Plan & X-sect < 30 degrees ahead right (2 span steel bridge)	10/22/2004
SA-1-0	Approach span for vaulted abutments with PPC I beams no skew	10/22/2004
SA-1D-0	Approach span for vaulted abutments with PPC I beams no skew	10/22/2004
SA-1D-L	Approach span for vaulted abutments with PPC I beams ahead left	10/22/2004
SA-1D-R	Approach span for vaulted abutments with PPC I beams ahead right	10/22/2004
SA-1-L	Approach span for vaulted abutments with PPC I beams ahead left	10/22/2004
SA-1-R	Approach span for vaulted abutments with PPC I beams ahead right	10/22/2004
SA-2-0	Approach span for vaulted abutments (sand filled) no skew	10/22/2004
SA-2-L	Approach span for vaulted abutments (sand filled) ahead left	10/22/2004
SA-2-R	Approach span for vaulted abutments (sand filled) ahead right	10/22/2004
SB-1	Cantilever forming brackets (W27 and smaller)	10/22/2004
SI-1-0	Super Plan & X-sect no skew (1 span with integral abutments)	10/22/2004
SI-1-L	Super Plan & X-sect ahead left (1 span with integral abutments)	10/22/2004
SI-1-R	Super Plan & X-sect ahead right (1 span with integral abutments)	10/22/2004
SI-2-0	Super Plan & X-sect no skew (2 span with integral abutments)	10/22/2004
SI-2-L	Super Plan & X-sect ahead left (2 span with integral abutments)	10/22/2004
SI-2-R	Super Plan & X-sect ahead right (2 span with integral abutments)	10/22/2004
SI-DS1	Integral abutment diaphragm details (for steel beams/girders > 27")	10/22/2004
SI-DS2	Integral abutment diaphragm details (for steel beams/girders 27" and smaller)	10/22/2004

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

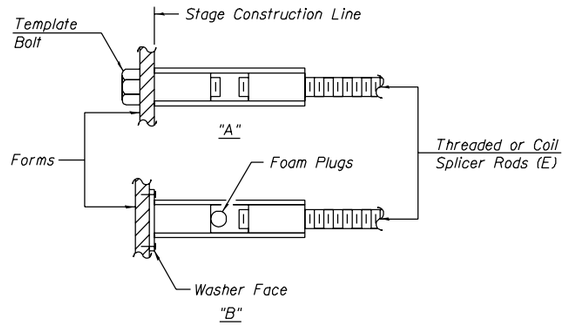
SHEET NO. -
- SHEETS

Contract #



BAR SPLICER ASSEMBLY ALTERNATIVES

** Heavy Hex Nuts conforming to ASTM A 563, Grade C, D or DH may be used.



INSTALLATION AND SETTING METHODS

"A" : Set bar splicer assembly by means of a template bolt.
"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
(E) : Indicates epoxy coating.

NOTES

Bar splicer assemblies shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.

Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length.

All reinforcement bars shall be lapped and tied to the splicer rods or dowel bars.

Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars.

Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed bar splicer assembly satisfies the following requirements:

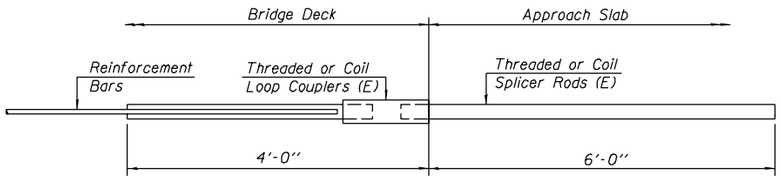
① Minimum Capacity (Tension in kips) = $1.25 \times fy \times A_t$

② Minimum *Pull-out Strength (Tension in kips) = $1.25 \times fs_{allow} \times A_t$

Where fy = Yield strength of lapped reinforcement bars in ksi.
fs_{allow} = Allowable tensile stress in lapped reinforcement bars in ksi (Service Load)
A_t = Tensile stress area of lapped reinforcement bars.
* = 28 day concrete

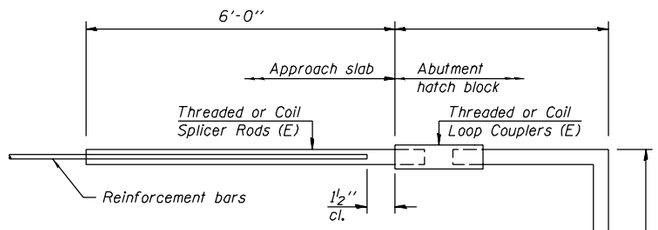
BAR SPLICER ASSEMBLIES			
Bar Size to be Spliced	Splicer Rod or Dowel Bar Length	Strength Requirements	
		Min. Capacity kips - tension	Min. Pull-Out Strength kips - tension
#4	1'-8''	14.7	5.9
#5	2'-0''	23.0	9.2
#6	2'-7''	33.1	13.3
#7	3'-5''	45.1	18.0
#8	4'-6''	58.9	23.6
#9	5'-9''	75.0	30.0
#10	7'-3''	95.0	38.0
#11	9'-0''	117.4	46.8

Bar splicer assemblies shall be according to Section 508 of the Standard Specifications, except as noted. The furnishing and installation of bar splicer assemblies will be measured and paid for at the contract unit price each for "BAR SPLICERS."



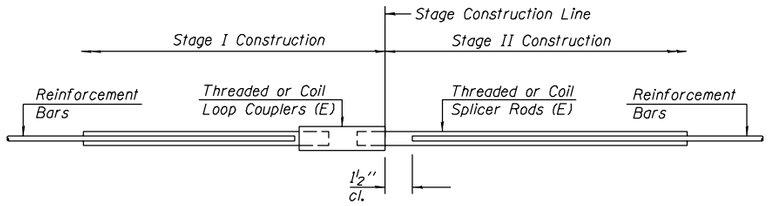
FOR INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

Bar Splicer for #5 bar
Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 9.2 kips - tension
No. Required =



FOR PILE BENT ABUTMENTS

Bar Splicer for #5 bar
Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 9.2 kips - tension
No. Required =



STANDARD

Bar Size	No. Assemblies Required	Location

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

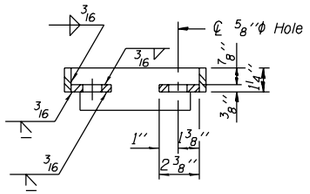
BSD-1 10-22-04

BAR SPLICER ASSEMBLY DETAILS

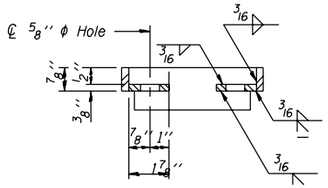
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

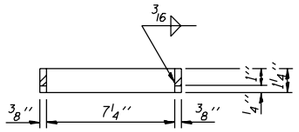
SHEET NO. -
- SHEETS



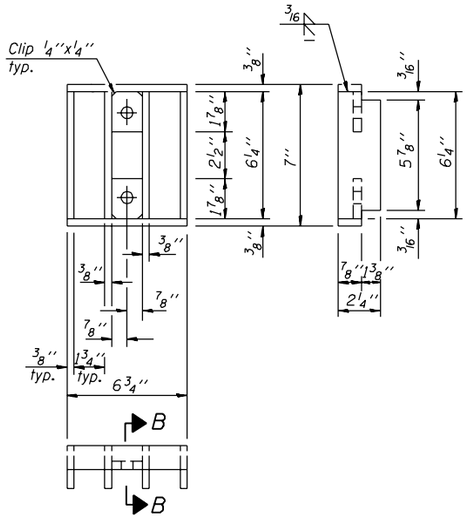
SECTION A-A



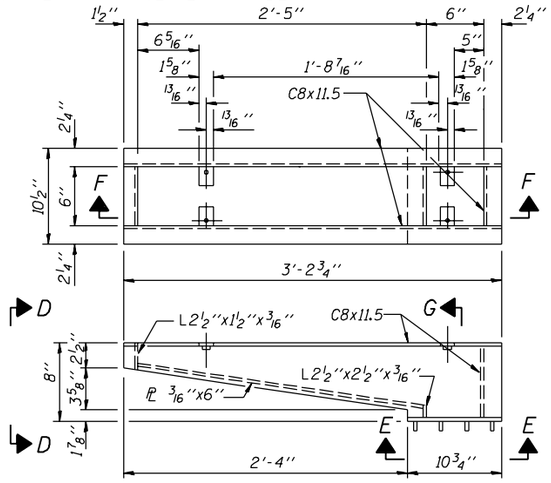
SECTION B-B



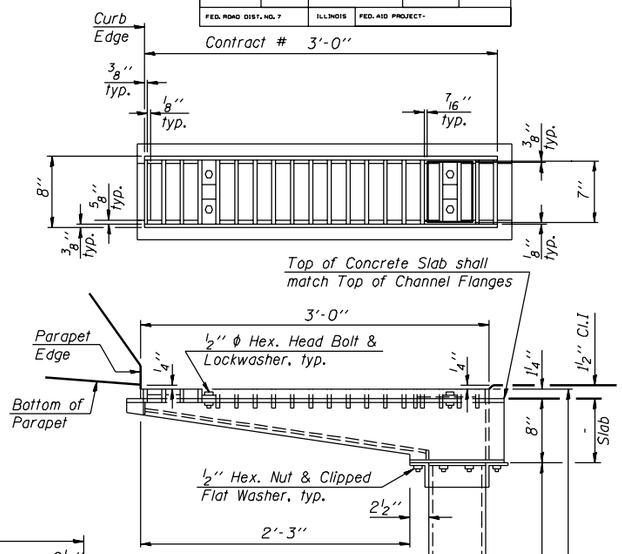
SECTION C-C



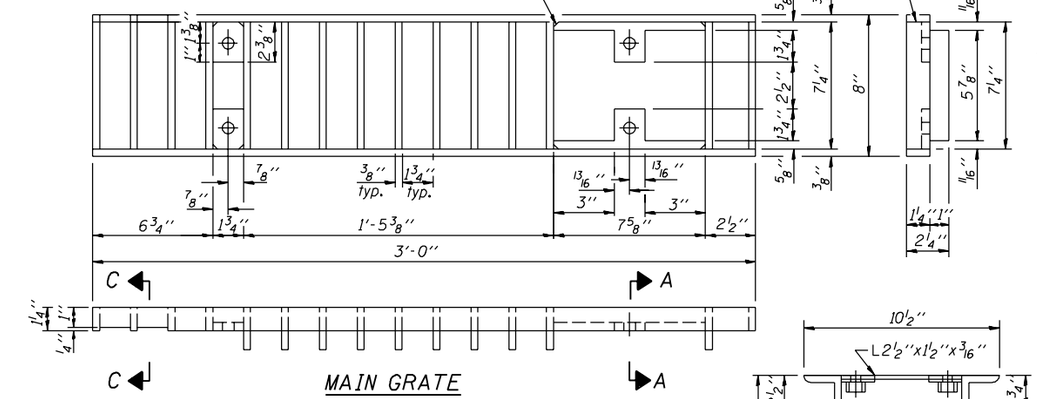
CLEANOUT GRATE



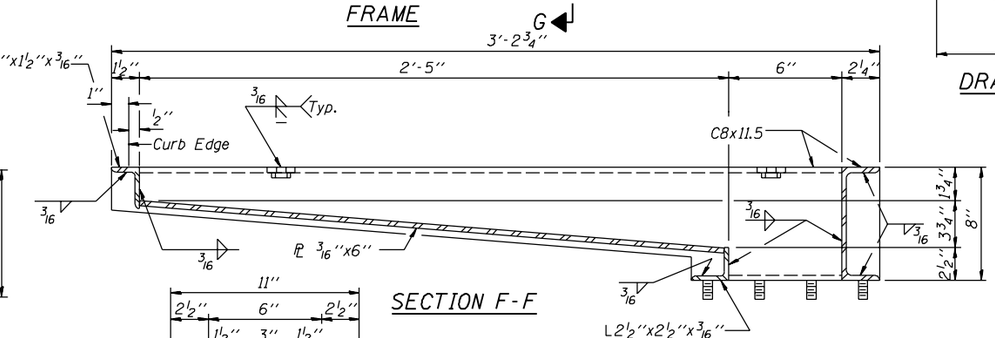
FRAME



DRAINAGE SCUPPER

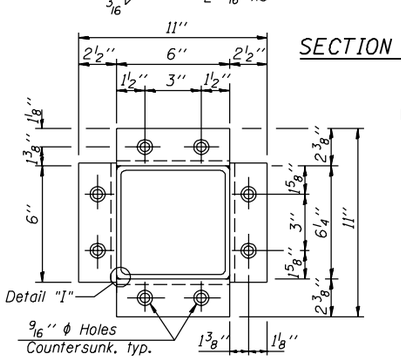


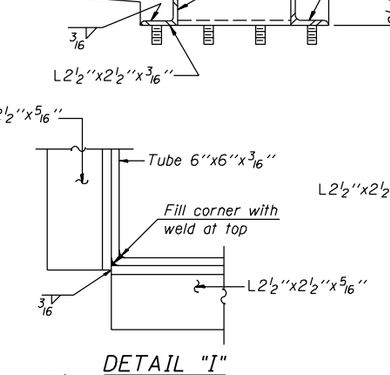
MAIN GRATE



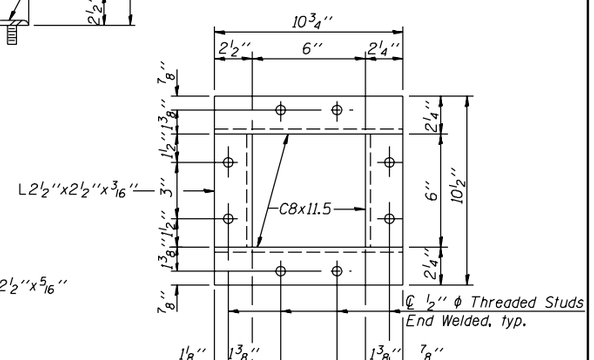
SECTION F-F

VIEW D-D

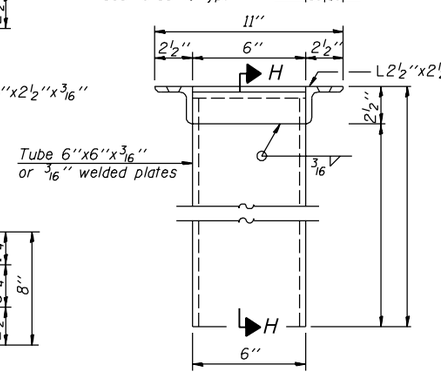




DETAIL "I"

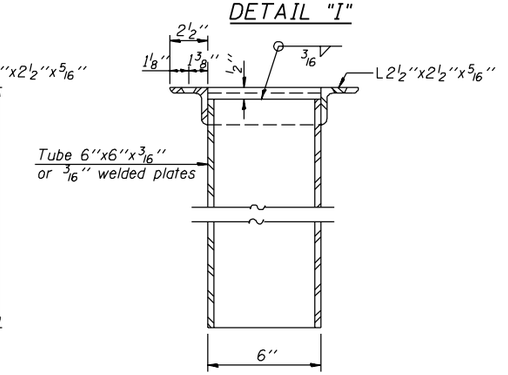


VIEW E-E



SECTION G-G

DOWNSPOUT



SECTION H-H

Notes:

Hollow structural steel tubing shall conform to the requirements of ASTM designation A 500 Grade B, or A 501 Structural Steel Tubing.

All other shapes, plates and bars shall conform to the requirements of AASHTO M 270 Grade 36.

Bolts, studs, washers and nuts shall conform to the requirements of ASTM A 307.

The Main Grate, Cleanout Grate, Frame and Downspout shall be galvanized after shop fabrication according to AASHTO M 111 & ASTM A 385.

All bolts, washers and nuts shall be galvanized according to AASHTO M 232.

Cost of the Main Grate, Cleanout Grate, Frame, Downspout, Bolts, Washers and Nuts including complete installation of Scupper will be paid for at the unit bid price each for "DRAINAGE SCUPPERS."

The Waterproofing Membrane System shall be installed such that the membrane covers the frame flanges and extends down into the frame with the grates placed on top of the membrane.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Drainage Scupper	Each	

DRAINAGE SCUPPER

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

\- 200

EXAMINED

PASSED

ENGINEER OF BRIDGE DESIGN

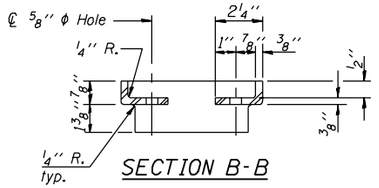
ENGINEER OF BRIDGES AND STRUCTURES

DS-1 10-22-04 (W.T. to inside of exterior stringer flange shall not be > 3'-11")

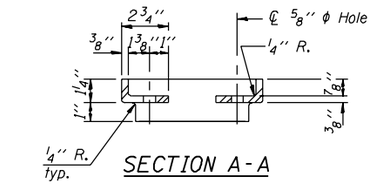
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
-				
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

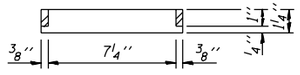
SHEET NO. -
- SHEETS



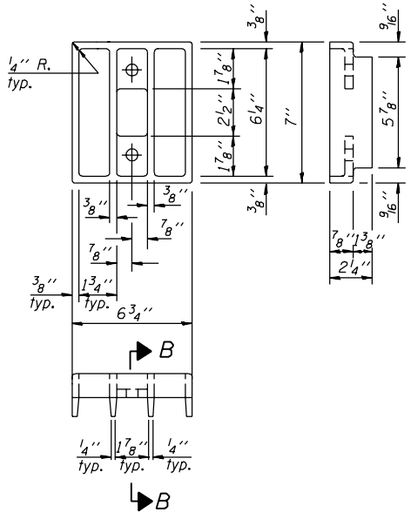
SECTION B-B



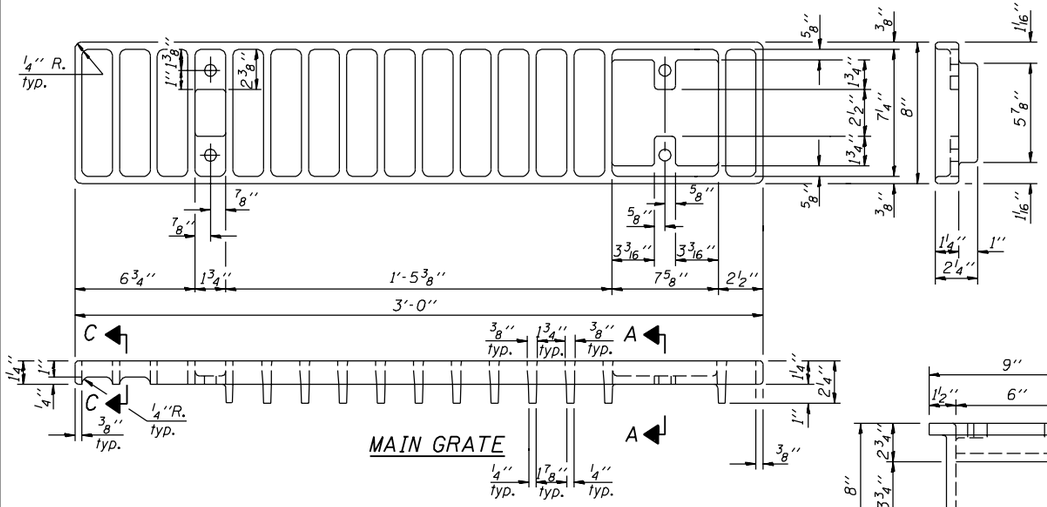
SECTION A-A



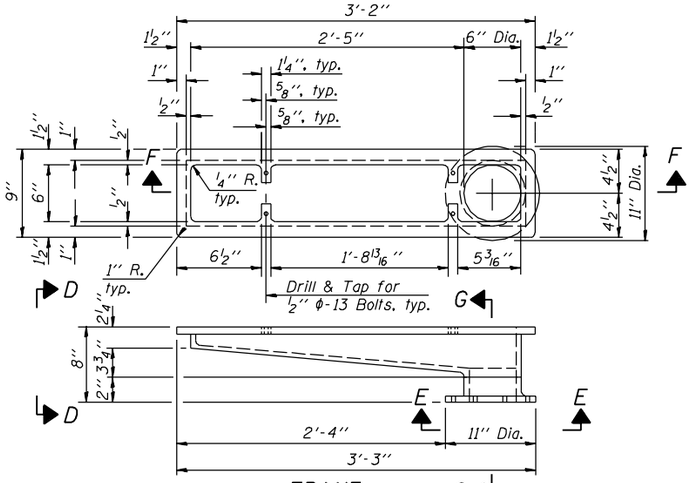
SECTION C-C



CLEANOUT GRATE



MAIN GRATE



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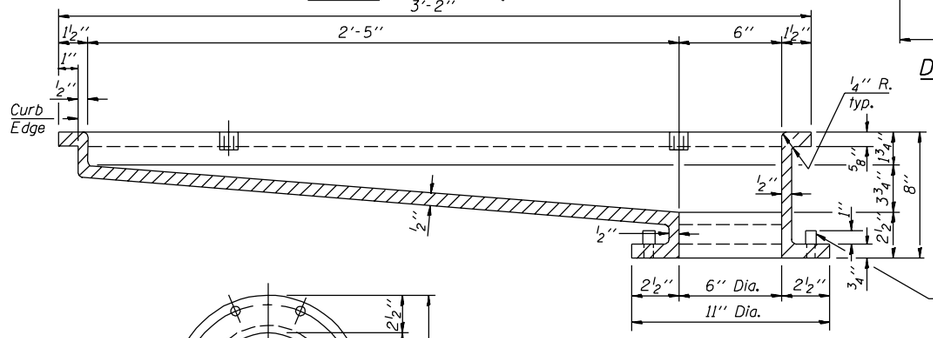
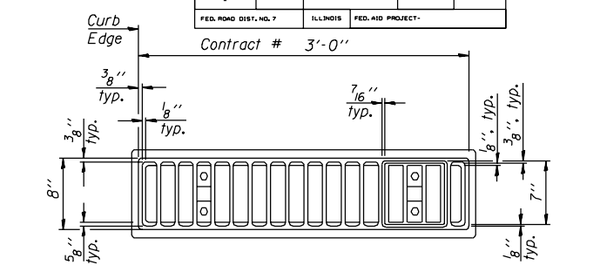
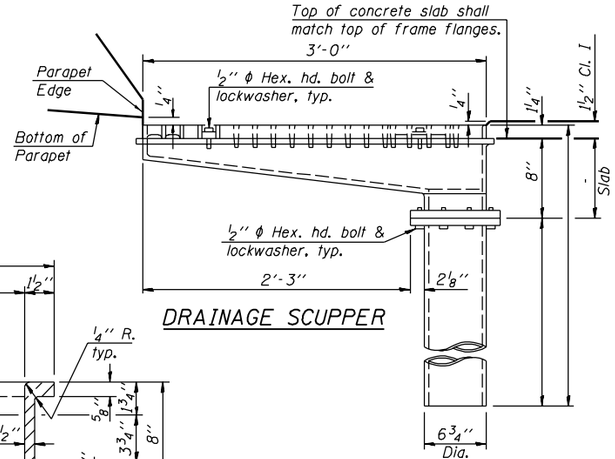
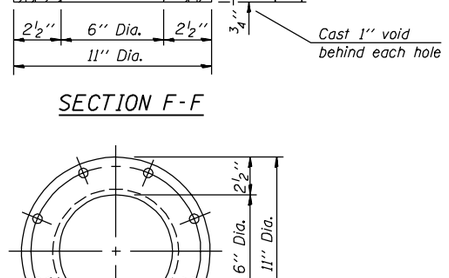
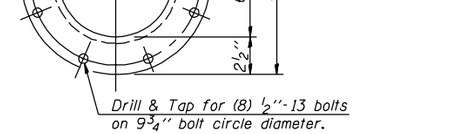




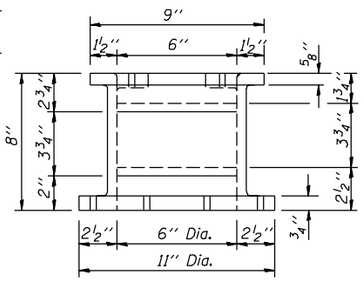


DRAINAGE SCUPPER

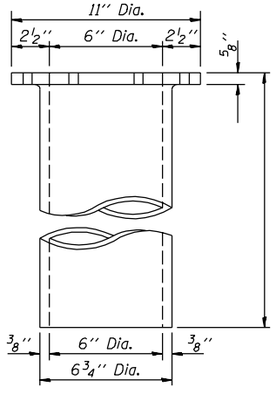




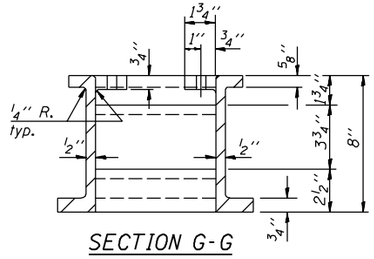
VIEW E-E



VIEW D-D



DOWNSPOUT



SECTION G-G

Notes:

All cast iron parts shall be gray iron conforming to the requirements of AASHTO M 105, Class 30.

Bolts, washers and nuts shall conform to the requirements of ASTM A 307.

All bolts, washers and nuts shall be galvanized according to AASHTO M 232.

The waterproofing membrane system shall be installed such that the membrane covers the frame flanges and extends down into the frame with the grates placed on top of the membrane.

Cost of the Main Grate, Cleanout Grate, Frame, Downspout, Bolts, Washers and Nuts including complete installation of Scupper shall be paid for at the unit bid price each for "DRAINAGE SCUPPERS".

The Contractor may use at his option steel frames and steel grates or cast frames and cast grates, but will not be allowed to use steel grates with cast frames nor cast grates with steel frames.

DESIGNED -	- 200
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGE DESIGN
	ENGINEER OF BRIDGES AND STRUCTURES

DS-2 10-22-04 (W.T. to inside of exterior stringer flange shall not be > 3'-11")

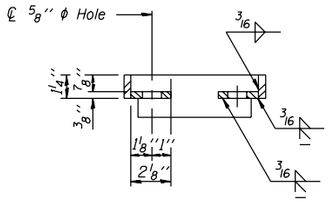
(Sheet 2 of 2)

ALTERNATE - CAST IRON
DRAINAGE SCUPPER

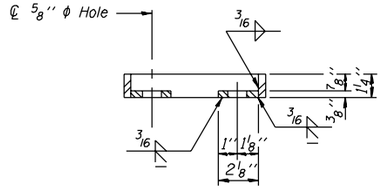
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

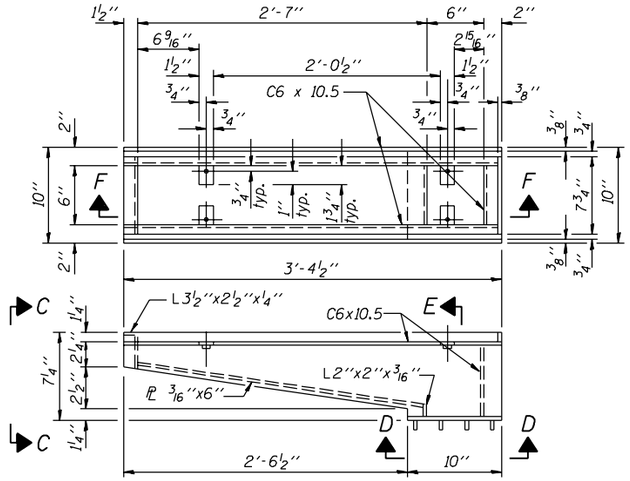
SHEET NO. -
- SHEETS



SECTION A-A



SECTION B-B



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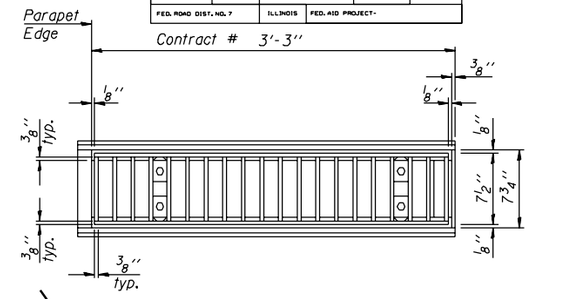
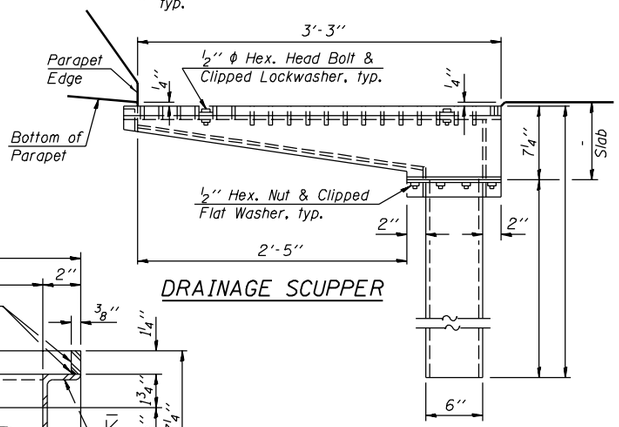
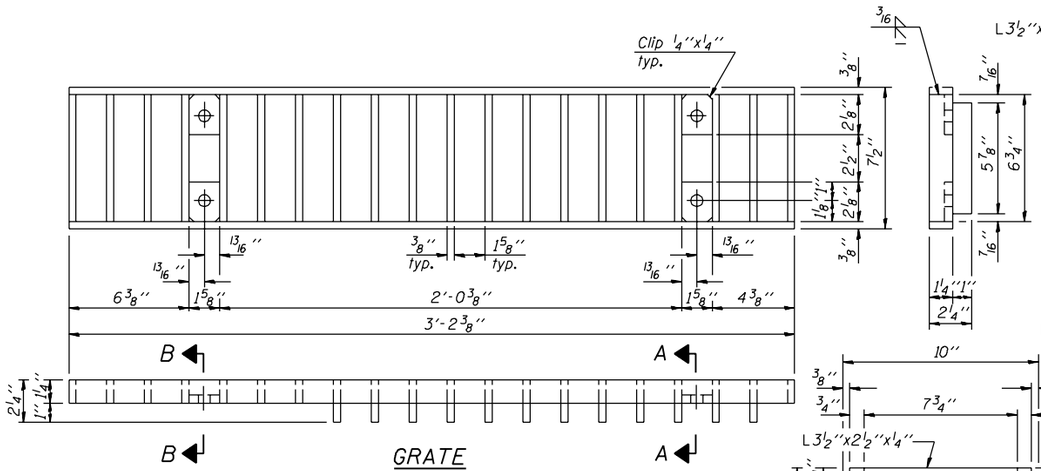
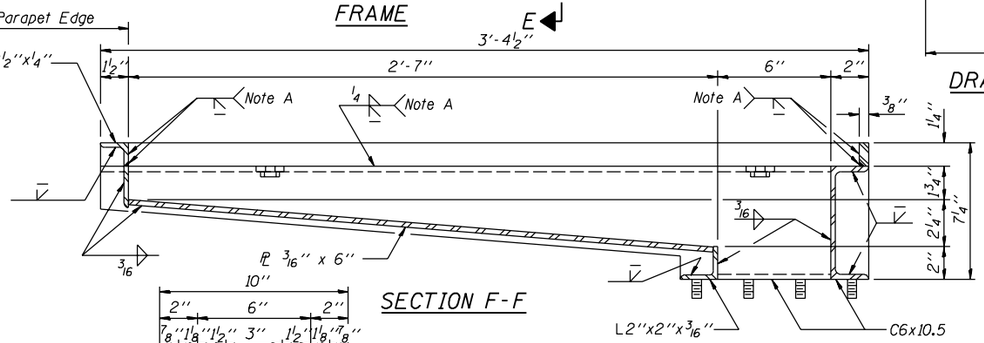




DRAINAGE SCUPPER

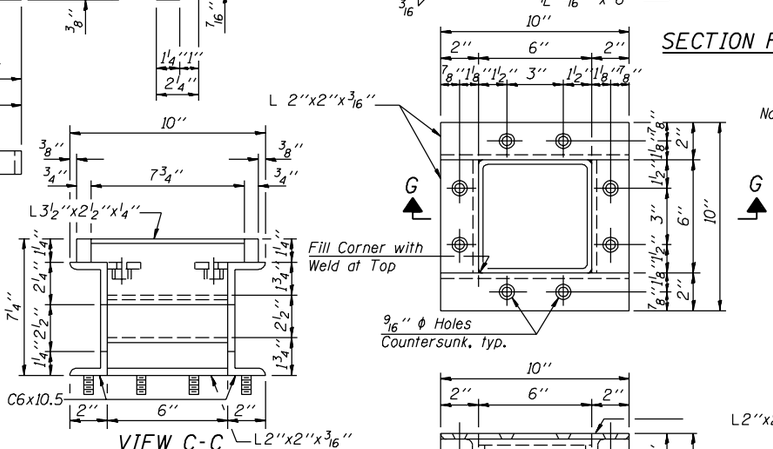


GRATE

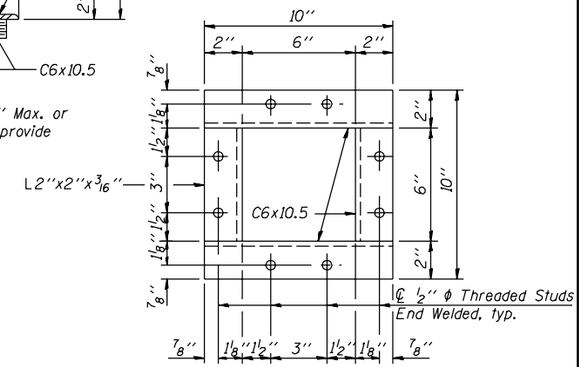


SECTION F-F

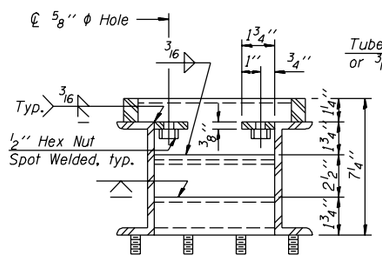
Note A: Surface of welds shall be recessed 1/16" Max. or placed flush with inside face of bars to provide clearance for Grate.



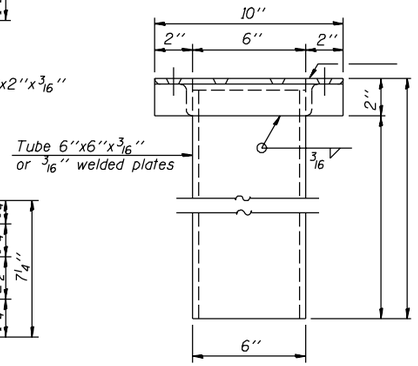
VIEW C-C



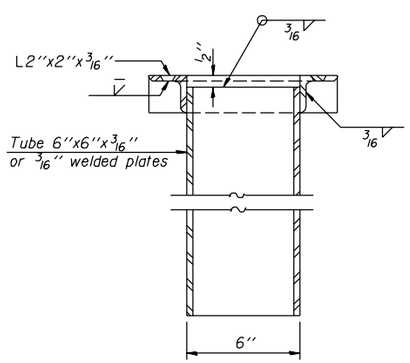
VIEW D-D



SECTION E-E



DOWNSPOUT



SECTION G-G

Notes:

Hollow structural steel tubing shall conform to the requirements of ASTM designation A 500 Grade B, or A 501 Structural Steel Tubing.

All other shapes, plates and bars shall conform to the requirements of AASHTO M 270 Grade 36.

Bolts, studs, washers and nuts shall conform to the requirements of ASTM A 307.

The Grate, Frame and Downspout shall be galvanized after shop fabrication according to AASHTO M 111 & ASTM A 385.

All bolts, washers and nuts shall be galvanized according to AASHTO M 232.

Cost of the Grate, Frame, Downspout, Bolts, Washers and Nuts including complete installation of Scupper will be paid for at the unit bid price each for "DRAINAGE SCUPPERS."

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Drainage Scupper	Each	

DESIGNED -	- 200
CHECKED -	EXAMINED
DRAWN -	ENGINEER OF BRIDGE DESIGN
CHECKED -	PASSED
	ENGINEER OF BRIDGES AND STRUCTURES

DS-3 10-22-04 (W.T. to inside of exterior stringer flange shall not be 3'-11")

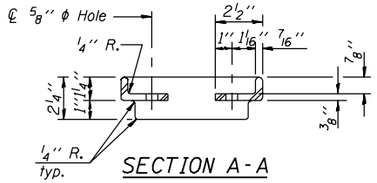
(Sheet 1 of 2)

STEEL DRAINAGE SCUPPER

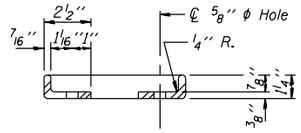
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-				
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

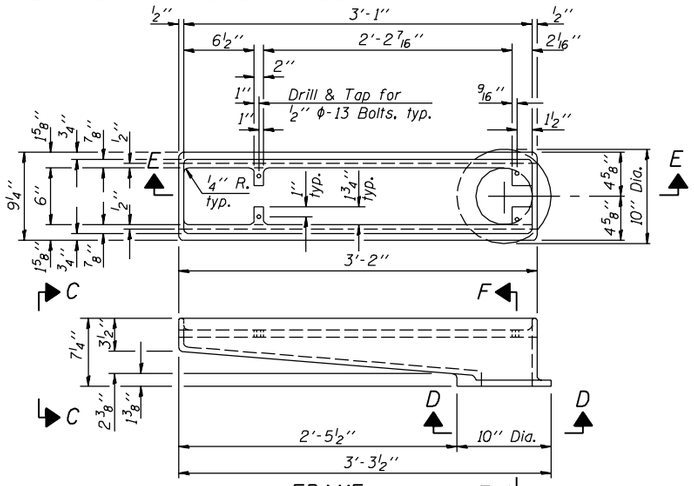
SHEET NO. -
- SHEETS



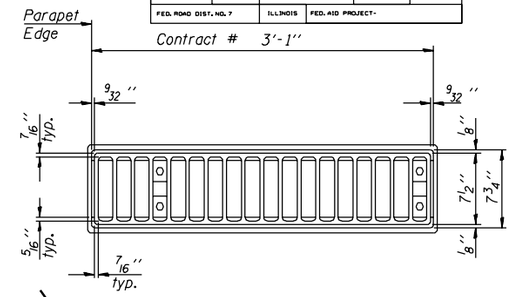
SECTION A-A

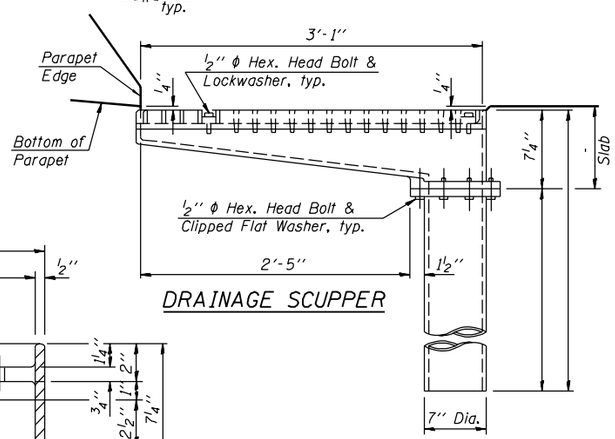


SECTION B-B

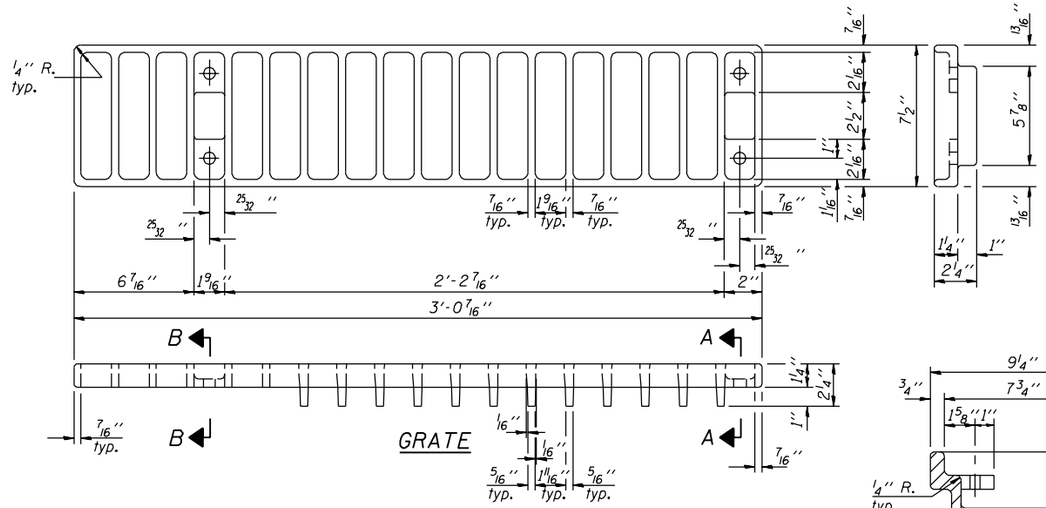


FRAME



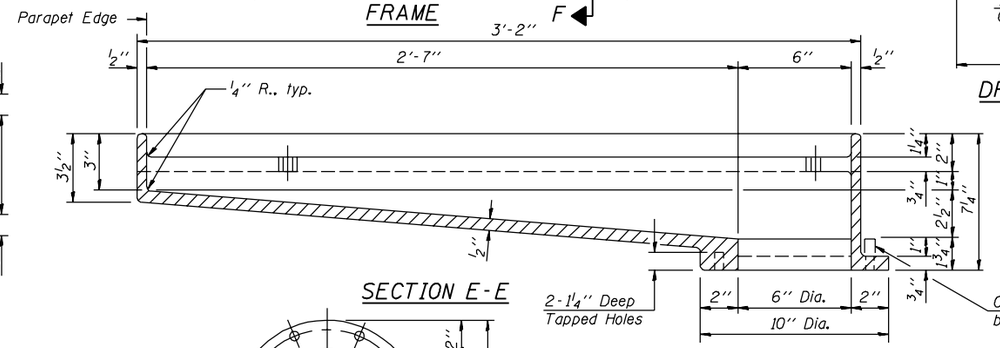


DRAINAGE SCUPPER

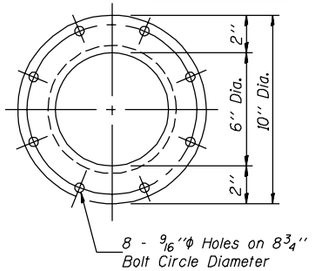


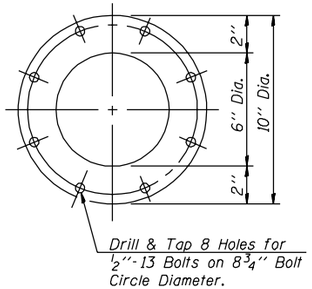
GRATE

Notes:
All cast iron parts shall be gray iron conforming to the requirements of AASHTO M 105, Class 30.
Bolts and washers shall conform to the requirements of ASTM A 307.
All bolts and washers shall be galvanized according to AASHTO M 232.
As an alternate bolts and washers may be stainless steel.
Cost of the Grate, Frame, Downspout, bolts and washers including complete installation of Scupper will be paid for at the unit bid price each for "DRAINAGE SCUPPERS."
The Contractor may use at his option steel drainage scuppers or cast iron drainage scuppers.

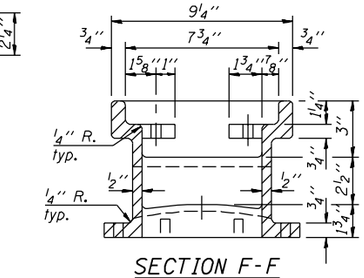


SECTION E-E

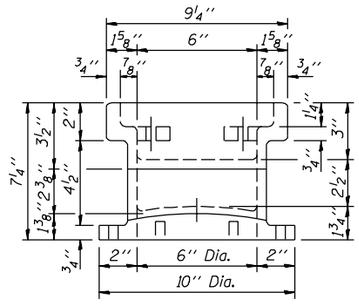




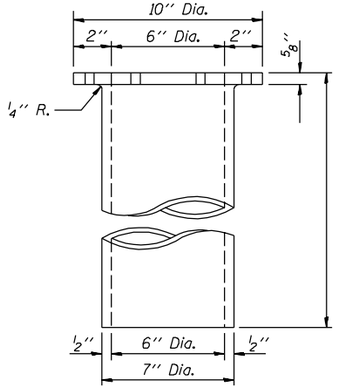
VIEW D-D



SECTION F-F



VIEW C-C



DOWNSPOUT

DESIGNED -	- 200
CHECKED -	EXAMINED
DRAWN -	ENGINEER OF BRIDGE DESIGN
CHECKED -	PASSED
	ENGINEER OF BRIDGES AND STRUCTURES

DS-4 10-22-04 (W.T. to inside of exterior stringer flange shall not be > 3'-11")

(Sheet 2 of 2)

ALTERNATE - CAST IRON DRAINAGE SCUPPER

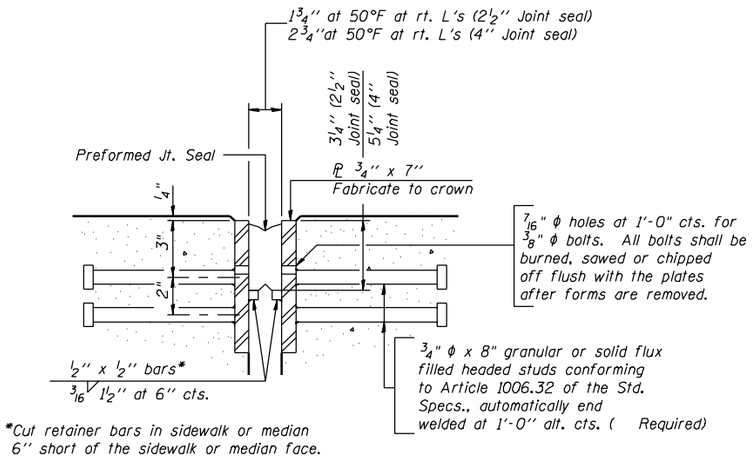
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -

- SHEETS

Contract #



*Cut retainer bars in sidewalk or median 6" short of the sidewalk or median face.

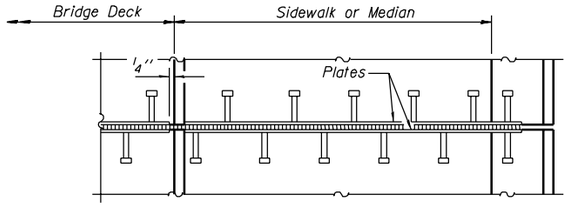
SECTION THRU EXPANSION JOINT

(2½" and 4" joint seals)

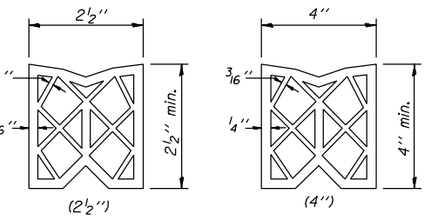
Bridge Joint System (Expansion)		
Design Movement	Required Preformed Joint Seal Size	Required Strip Seal Rated movement
1"	2½"	1"
1⅝"	4"	2"

GENERAL NOTES

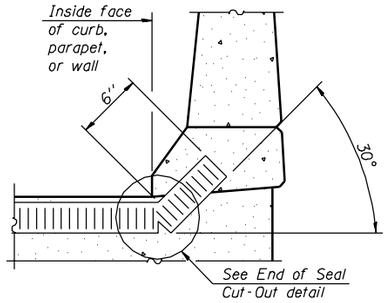
Furnish steel plates in segments of 20 feet maximum length. Maximum space between installed segments shall be 3/16". Seal space with silicone sealant suitable for structural steel.



PLAN AT SIDEWALK OR MEDIAN

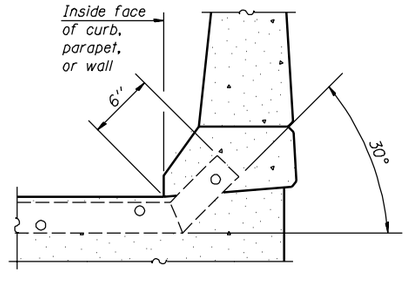


PREFORMED JOINT SEAL



AT CURB, PARAPET, OR WALL

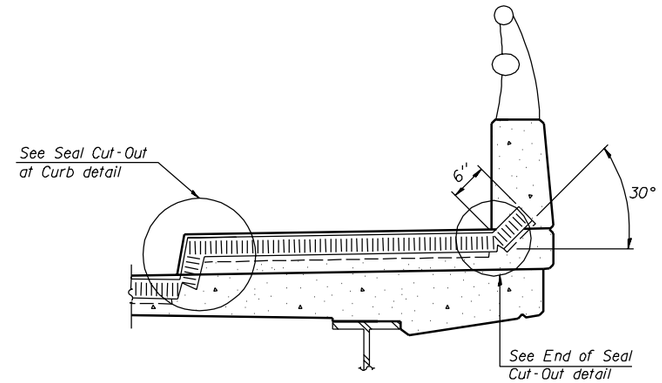
(Showing seal)



AT CURB, PARAPET, OR WALL

(Showing plate)

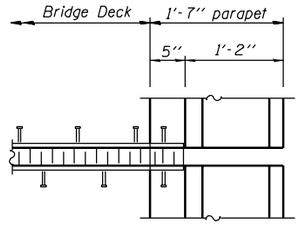
TYPICAL END TREATMENTS



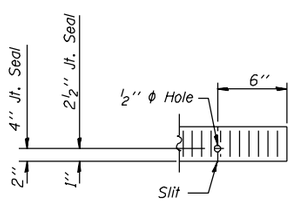
AT SIDEWALK OR MEDIAN*

(Showing plate and seal)

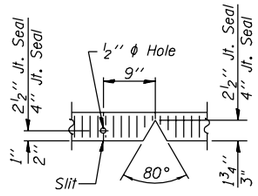
* Shorter plates with a single row of studs at 12" centers may be necessary on medians which are shallower than 9". See manufacturer's recommendation.



PLAN AT PARAPET



END OF SEAL CUT-OUT



SEAL CUT-OUT AT CURB

BILL OF MATERIAL

Item	Unit	Total
Bridge Joint System (Expansion)	foot	

(Sheet 1 of 2)

BRIDGE JOINT SYSTEM - EXPANSION (PREFORMED JOINT SEAL)

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

\- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

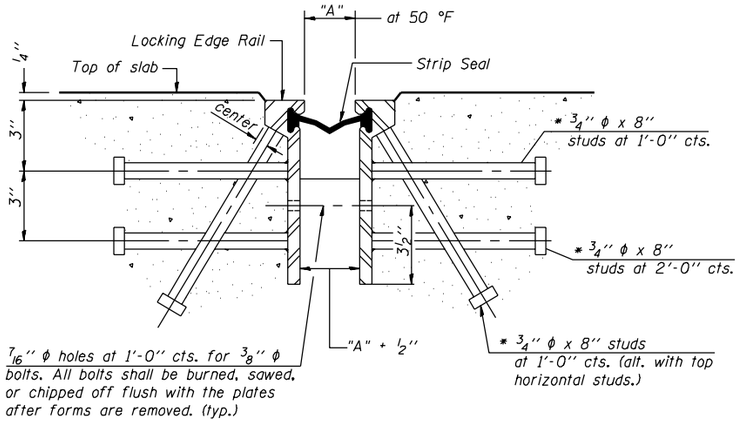
EJ-BJS 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

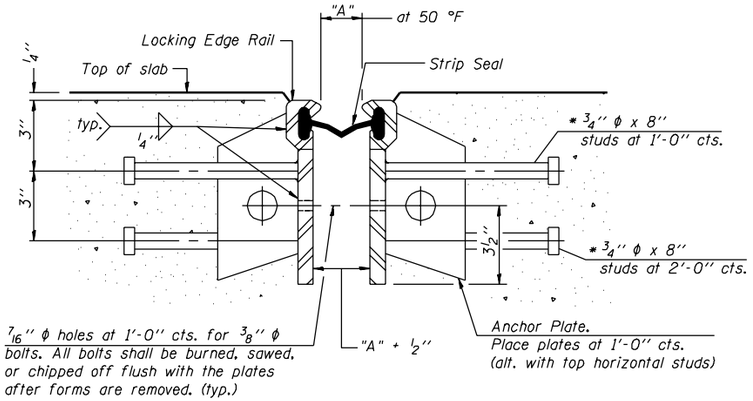
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-				
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #



Required Strip Seal rated movement	"A"
1''	1 1/8''
2''	1 3/4''



GENERAL NOTES

The strip seal shall be made continuous and shall have a minimum thickness of 1/4''. The configuration of the strip seal shall match the configuration of the Locking Edge Rails.

The height and thickness of the Locking Edge Rails shown are minimum dimensions. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed.

Locking Edge Rails may be spliced at slope discontinuities and stage construction joints.

The manufacturer's recommended installation methods shall be followed.

The joint opening and deck dimensions detailed on the superstructure are based on a preformed joint seal. If the contractor elects to use the alternate strip seal joint, the opening and deck dimensions shall be modified according to the dimensions detailed on this sheet. Required modifications shall be made at no additional cost to the State.

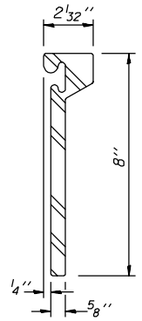
SECTION THRU ROLLED RAIL EXP. JOINT

(Studs Required)

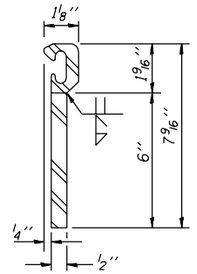
* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.

SECTION THRU WELDED RAIL EXP. JOINT

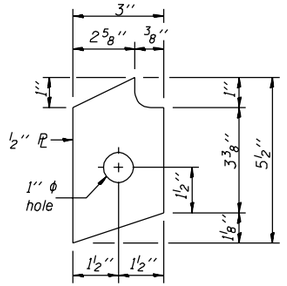
(Studs Required)
(Anchor Plates Required)



ROLLED (EXTRUDED) RAIL

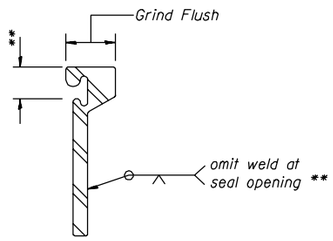


WELDED RAIL



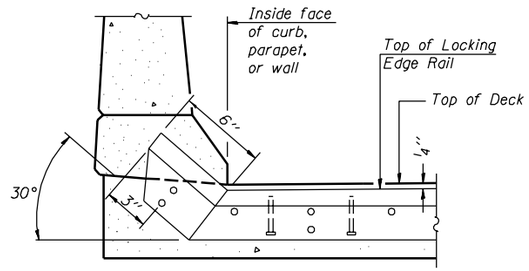
ANCHOR PL
(for welded rail)

LOCKING EDGE RAILS

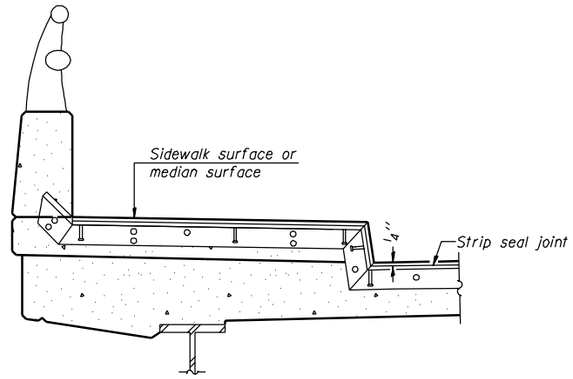


LOCKING EDGE RAIL SPLICE

The inside of the locking edge rail groove shall be free of weld residue.



AT CURB, PARAPET, OR WALL



AT SIDEWALK OR MEDIAN*

* Shorter plates with a single row of studs at 12" centers may be necessary on medians which are shallower than 9". See manufacturer's recommendation.

TYPICAL END TREATMENTS

DESIGNED -	-	200
CHECKED -	EXAMINED	
DRAWN -		ENGINEER OF BRIDGE DESIGN
CHECKED -	PASSED	
		ENGINEER OF BRIDGES AND STRUCTURES

EJ-BJS 10-22-04

(Sheet 2 of 2)

BRIDGE JOINT SYSTEM - EXPANSION (ALTERNATE-STRIP SEAL)

Joint Size	"C" at 50°F	"D" at 50°F
2''	2''	1½'' Min.
2½''	2½''	1¾'' Min.
4''	3''	2½'' Min.

INSTALLATION NOTES

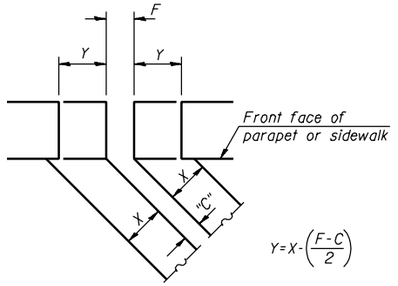
1. Install continuous seal in roadway, parapet, curb, and sidewalk.
2. Install anchor blocks as indicated.

Note A:
Maximum spacing of anchor bolts shall be 12'' centers.

SKEW LIMITATIONS

The details of the anchor blocks and the elastomeric membrane in the parapet, as shown, are for up to 50° skews.

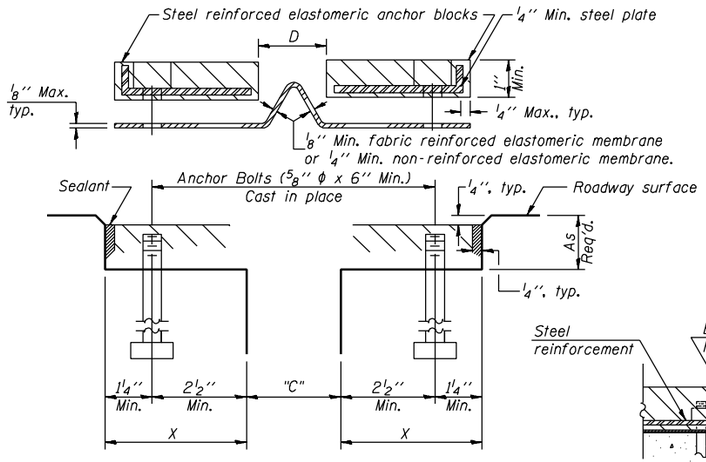
For skews greater than 50°, the anchor blocks and the elastomeric membrane, installed according to dimension "D", might require modifications to insure a minimum clearance of 1½'' from centerline of anchor studs to edge of parapet opening. The anchor blocks and the elastomeric membrane shall also be installed to the top of the parapet with the anchor studs spaced at ±12'' cts.



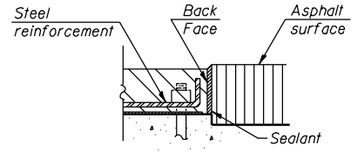
For dimension "F" see sheet #

FORMING BLOCKOUT SKETCH

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



CROSS SECTION



ANCHOR BLOCK WITH ASPHALT SURFACE

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #

GENERAL NOTES

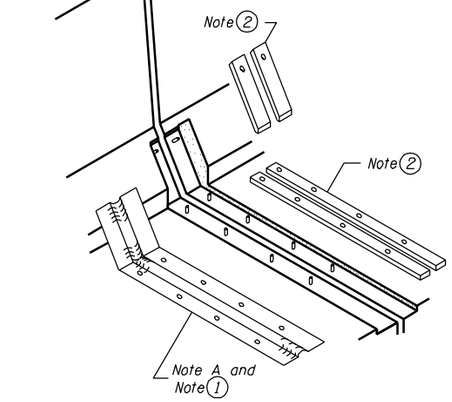
Continuous Seal Neoprene Expansion Joint shall consist of molded anchor blocks of elastomer and steel, field assembled over continuous lengths of elastomeric membrane.

The elastomeric membrane shall be premolded with a single or a double upward convolution that will have a "memory" to return to its molded position upon joint closure.

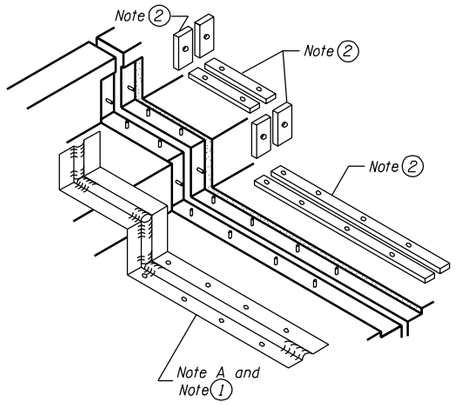
The convolution length shall be such that the extended length will not be greater than the manufactured length when the joint is fully expanded in its design range and will not protrude above the anchor blocks when the joint is fully compressed.

Joint openings shall be adjusted according to Article 503.10(c) of the Standard Specifications when the deck is poured at an ambient temperature other than 50° F.

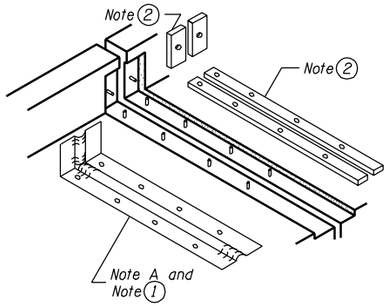
The parapet and roadway membrane shall be made continuous by an approved vulcanizing process. Lapping will not be permitted.



AT PARAPET



AT SIDEWALK OR MEDIAN

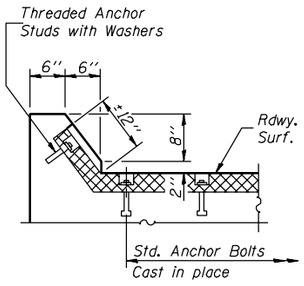


AT WALL

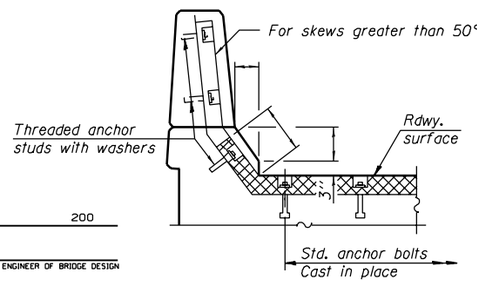
Note:
Stud needs to be threaded lower to allow for use of clamping nut.

Anchor studs should be stainless

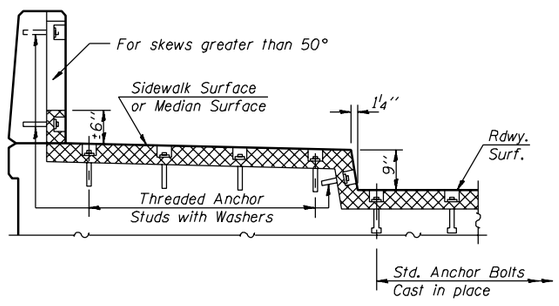
RECOMMENDED BLOCKOUT DETAIL



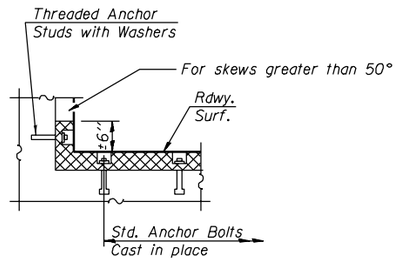
AT CURB



AT PARAPET



AT SIDEWALK OR MEDIAN



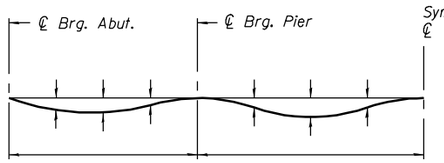
AT WALL

TYPICAL END TREATMENTS

CONTINUOUS SEAL TYPE
NEOPRENE EXPANSION JOINTS

DESIGNED -	- 200
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGE DESIGN
	ENGINEER OF BRIDGES AND STRUCTURES

EJ-CS 10-22-04

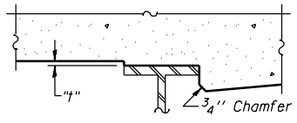


DEAD LOAD DEFLECTION DIAGRAM

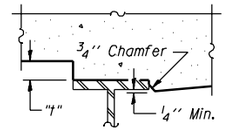
(Includes weight of concrete only.)

Note:
The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown below.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



At Minimum Fillet



At Maximum Fillet

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - - SHEETS

Contract #

To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown below, minus slab thickness, equals the fillet heights "t" above top flange of beams.

FILLET HEIGHTS

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

\- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

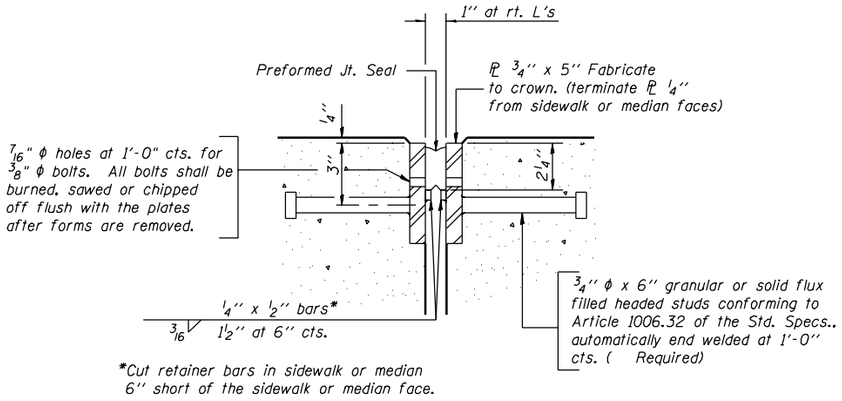
E-S 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

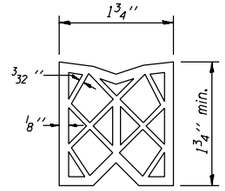
SHEET NO. -
- SHEETS

Contract #

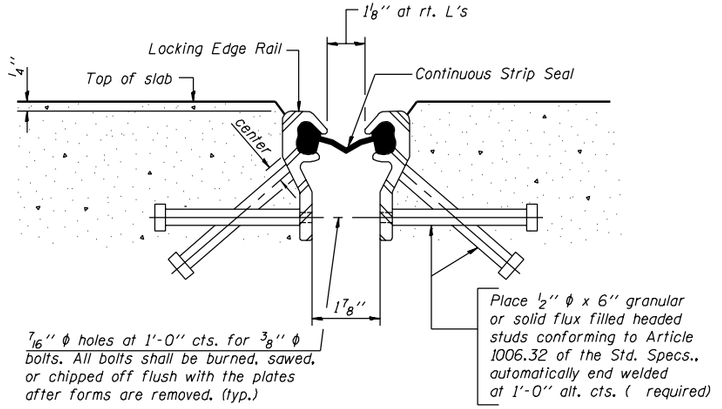


*Cut retainer bars in sidewalk or median 6" short of the sidewalk or median face.

SECTION THRU FIXED PREFORMED JOINT SEAL



PREFORMED JOINT SEAL



SECTION THRU FIXED STRIP SEAL JOINT

GENERAL NOTES

Furnish PJS steel plates in segments of 20 feet maximum length. Maximum space between installed segments shall be 3/16". Seal space with silicone sealant suitable for structural steel.

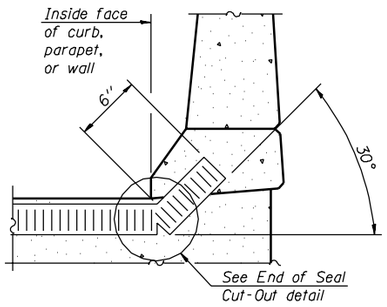
The strip seal shall be made continuous and shall have a minimum thickness of 1/4". The configuration of the strip seal shall match the configuration of the Locking Edge Rails.

The height and thickness of the Locking Edge Rails shown are minimum dimensions. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed.

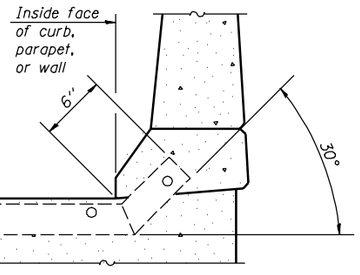
Locking Edge Rails may be spliced at slope discontinuities and stage construction joints.

The manufacturer's recommended installation methods shall be followed.

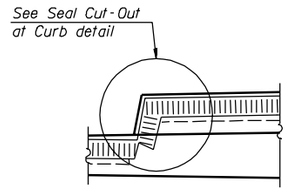
The joint opening and deck dimensions detailed on the superstructure are based on a preformed joint seal. If the contractor elects to use the alternate strip seal joint, the opening and deck dimensions shall be modified according to the dimensions detailed on this sheet. Required modifications shall be made at no additional cost to the State.



AT CURB, PARAPET, OR WALL
(Showing seal)

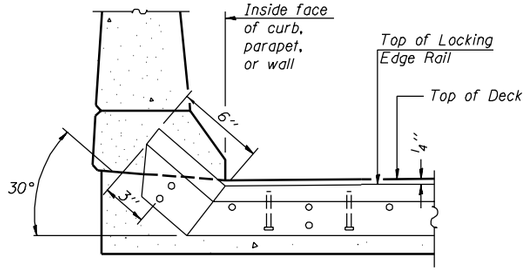


AT CURB, PARAPET, OR WALL
(Showing plate)

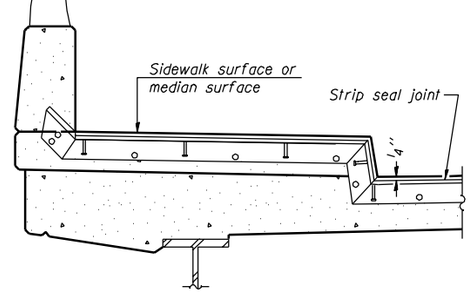


AT SIDEWALK OR MEDIAN

TYPICAL END TREATMENTS FOR PREFORMED JOINT SEAL

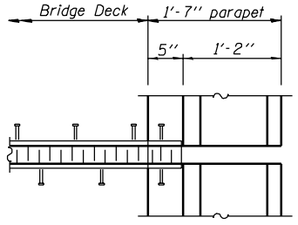


AT CURB, PARAPET, OR WALL

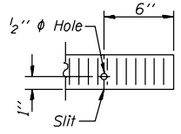


AT SIDEWALK OR MEDIAN

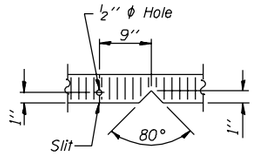
TYPICAL END TREATMENTS FOR STRIP SEAL



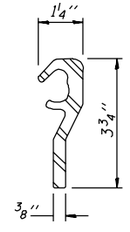
PLAN AT PARAPET



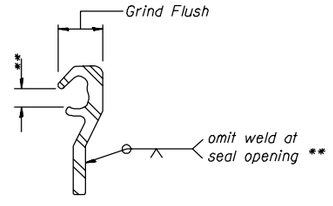
END OF SEAL CUT-OUT



SEAL CUT-OUT AT CURB



LOCKING EDGE RAIL



LOCKING EDGE RAIL SPLICE

The inside of the Locking Edge Rail groove shall be free of weld residue.

BILL OF MATERIAL

Item	Unit	Total
Bridge Joint System (Fixed)	foot	

BRIDGE JOINT SYSTEM - FIXED

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

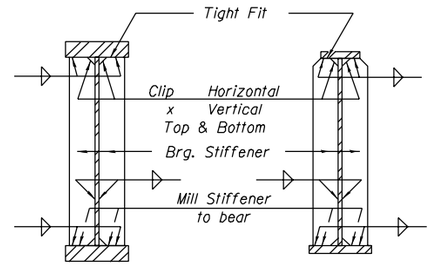
FJ-BJS 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

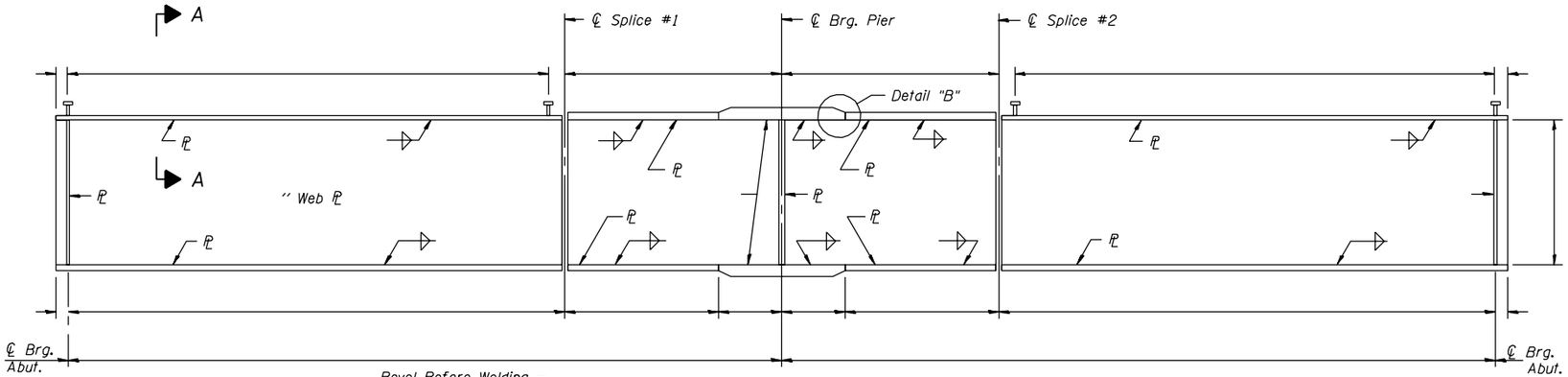
SHEET NO. -
- SHEETS

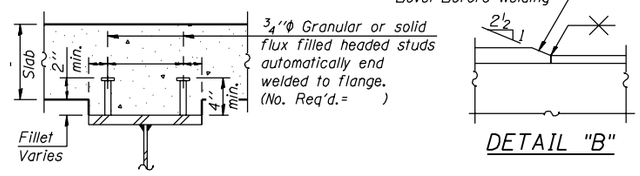
Contract #



SECTION AT PIER

SECTION AT ABUTMENT





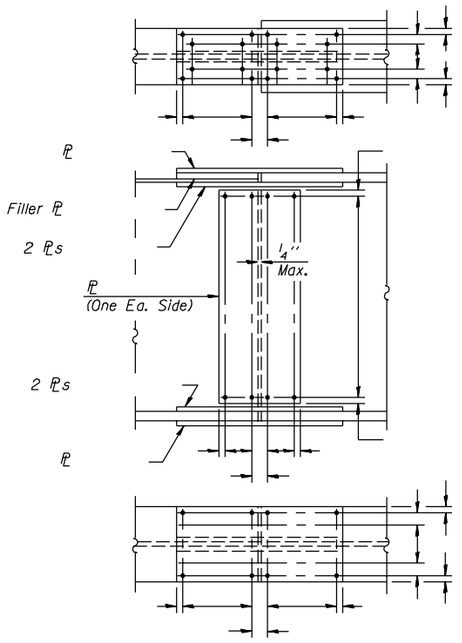
$\frac{3}{4}$"ϕ Granular or solid flux filled headed studs automatically end welded to flange. (No. Req'd.=)

SECTION A-A

DETAIL "B"

GIRDER ELEVATION

"NTR" denotes plates to which notch toughness requirements are applicable.



FIELD SPLICE DETAIL

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

G-1

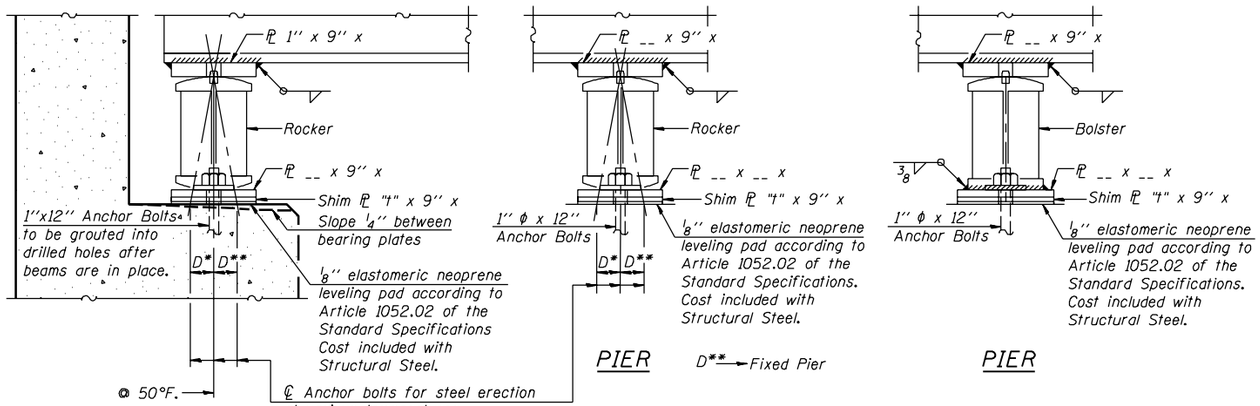
10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

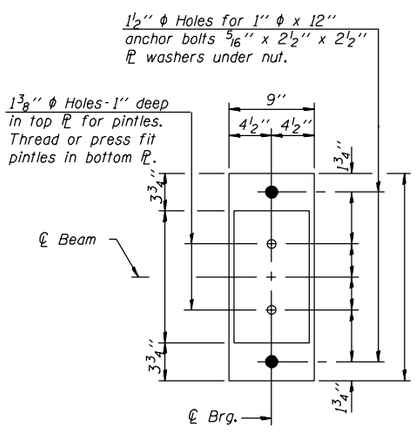
Contract #



SECTION AT ABUTMENT

PIER

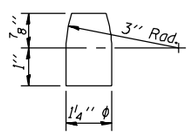
PIER



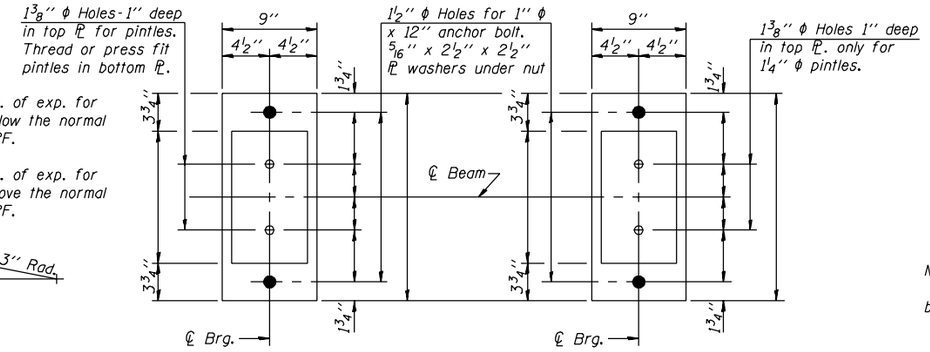
PLAN

* D=1/8''/100 ft. of exp. for every 15° below the normal temp. of 50°F.

** D=1/8''/100 ft. of exp. for every 15° above the normal temp. of 50°F.



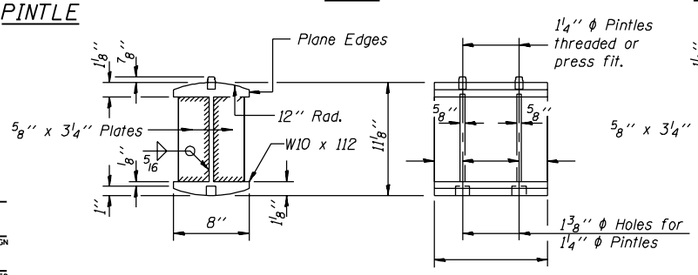
DETAIL OF PINTLE



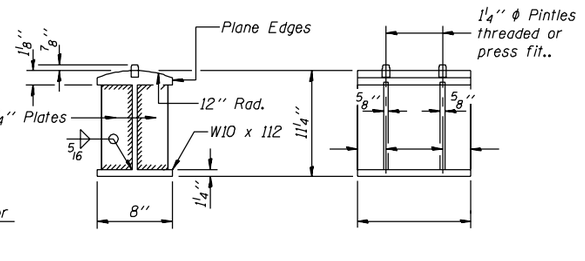
PLAN

PLAN

Notes:
Anchor bolts at fixed bearings may be built into the masonry.
See sheet for Anchor Bolt installation



DETAIL OF ROCKER AT



DETAIL OF BOLSTER AT

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

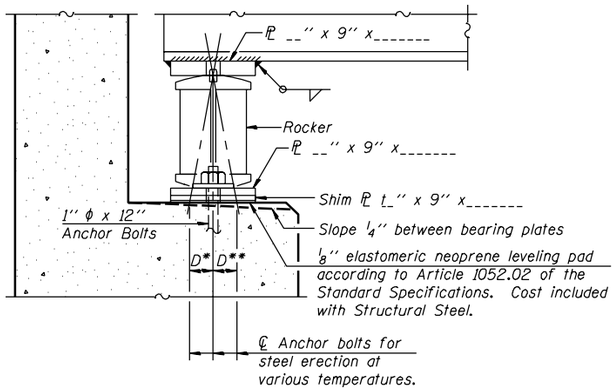
I-2 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

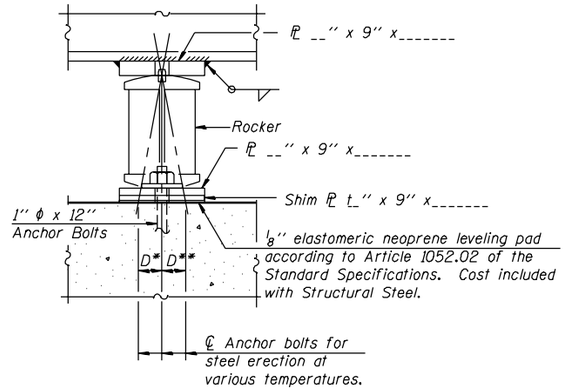
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

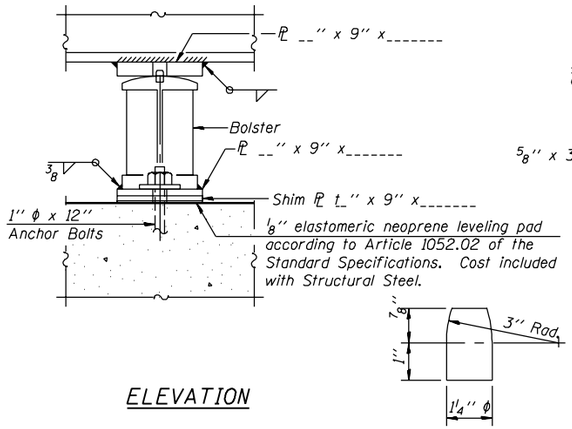
Contract #



ELEVATION

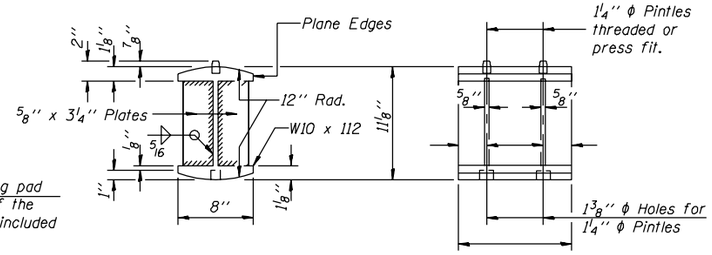


ELEVATION

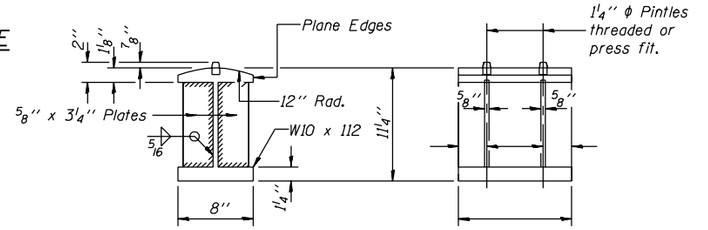


ELEVATION

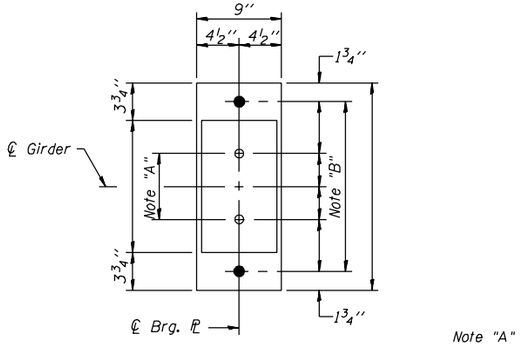
PINTLE



ROCKER

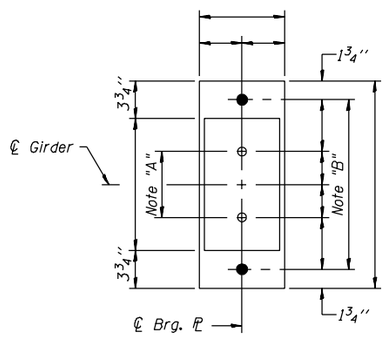


BOLSTER



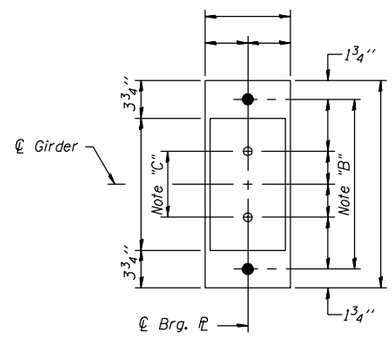
PLAN
AT ABUTMENT

Note "A"
$1\frac{3}{8}$" ϕ Holes-1" deep in top ℄ for $1\frac{1}{4}$" ϕ Pintles. Thread or press fit pintles in bottom ℄.



PLAN
AT PIER

Note "B"
$1\frac{1}{2}$" ϕ Holes for 1" ϕ Anchor Bolts- $\frac{5}{16}$" x $2\frac{1}{2}$" x $2\frac{1}{2}$" ℄ washer under nut.



PLAN
AT PIER

Note "C"
$1\frac{3}{8}$" ϕ Holes-1" deep in top ℄ only for $1\frac{1}{4}$"ϕ Pintles.

BEARING ASSEMBLY DETAILS

NOTES FOR SETTING OF ANCHOR BOLTS AT EXPANSION BEARINGS

a.) D* (Side of brg. away from fixed brg.)
D* = 1/8" per each 100' of expansion for every 15° fall below the normal temp. of 50° F.
D** (Side of brg. toward fixed brg.)
D** = 1/8" per each 100' of expansion for every 15° rise above the normal temp. of 50° F.

b.) After girders have been erected and dimensions D* & D** determined, holes shall be drilled and anchor bolts shall be installed as shown on Sheet of . All fixed anchor bolts may be built into the masonry.

INTERIOR GIRDER MOMENT TABLE

		0.4 Sp. _	Pier _	0.5 Sp. _	Pier _	0.6 Sp. _
Is	(in4)					
Ic	(in4)					
Ss	(in3)					
Sc	(in3)					
Z	(in3)					
D℄	(K/ft.)					
M℄	('K)					
s℄	(K/ft.)					
Ms℄	('K)					
M⏤	('K)					
M (Imp)	('K)					
5_3(M⏤ + I)	('K)					
Ma	('K)					
Mu	('K)					
fs℄ non-comp	(k.s.i.)					
fs℄ (comp)	(k.s.i.)					
fs5_3(⏤ + I)	(k.s.i.)					
fs (Overload)	(k.s.i.)					
fs (Total)	(k.s.i.)					
VR	(K)					

INTERIOR GIRDER REACTION TABLE

		_. Abut.	Pier _	Pier _	_. Abut.
R℄	(K)				
R⏤	(K)				
Imp.	(K)				
R (Total)	(K)				

Is and Ss are the moment of inertia and section modulus of the steel section used in computing fs (Total & Overload).
Ic and Sc are the moment of inertia and section modulus of the composite section used in computing fs (Total & Overload).
VR is the maximum live Load + Impact shear range in span.
Z is the plastic section modulus used to determine the Fully Plastic Moments in the non-composite areas.
Ma (Applied Moment)=1.3[M℄ + Ms℄ + 5_3(M⏤ + I)].
Mu is the Full Plastic Moment Capacity for Compact, Braced section.
fs (Overload) is the sum of the stresses due to M℄ + Ms℄ + 5_3(M⏤ + I).
fs (Total) is the sum of the stresses due to 1.3[M℄ + Ms℄ + 5_3(M⏤ + I)].

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

I-2-B 10-22-04

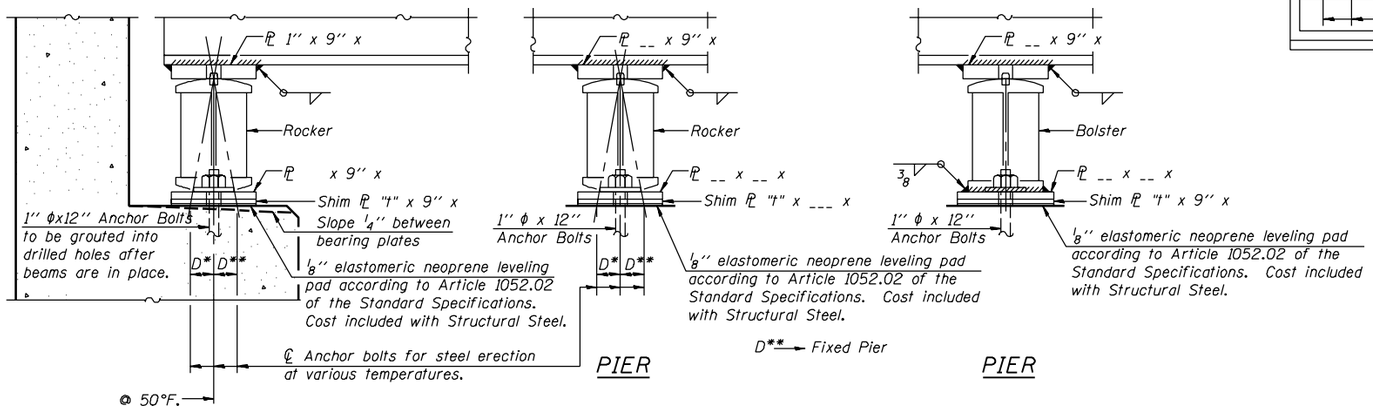
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-				
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #

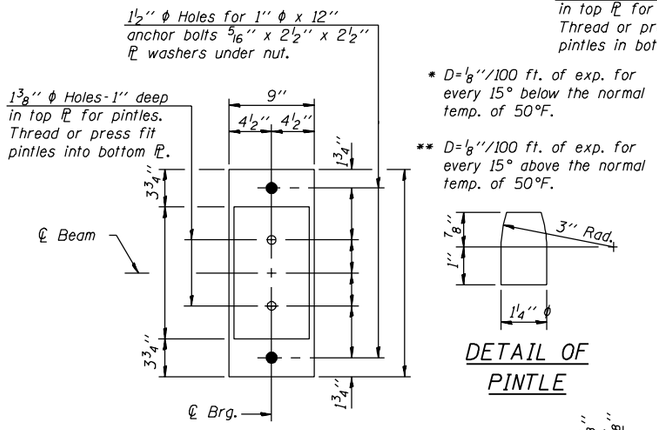
TOP OF BEAM ELEVATIONS



PIER

PIER

SECTION AT ABUTMENT

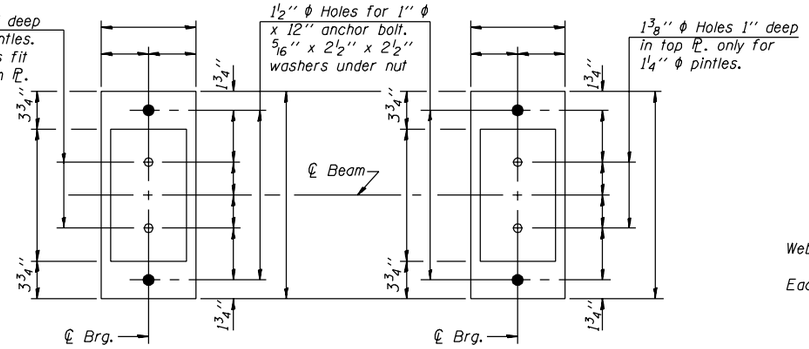


PLAN

* D=1/8''/100 ft. of exp. for every 15° below the normal temp. of 50°F.

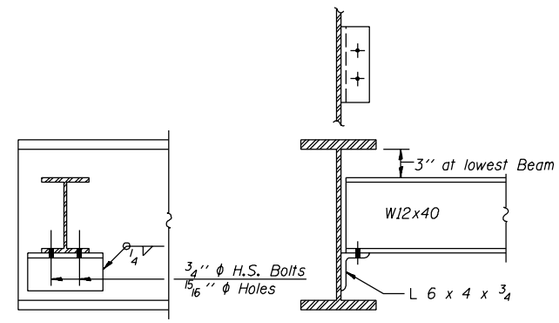
** D=1/8''/100 ft. of exp. for every 15° above the normal temp. of 50°F.

DETAIL OF PINTLE

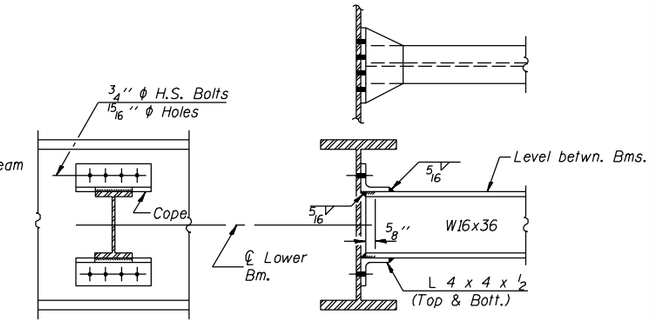


PLAN

PLAN

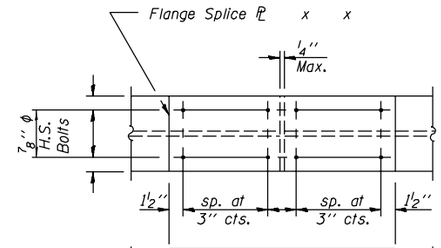


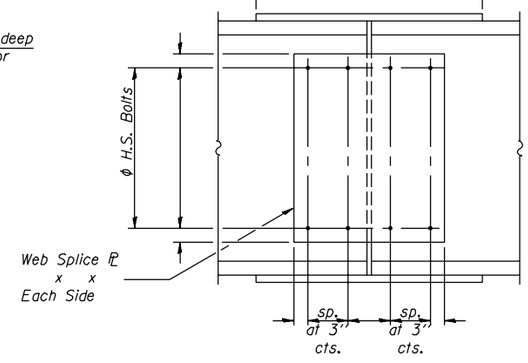
DIAPHRAGM D
Required



DIAPHRAGM D
Required

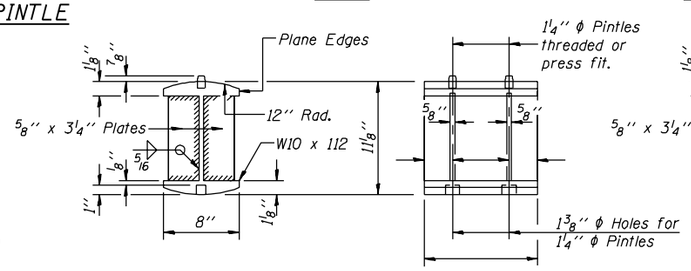
Note:
Two hardened washers shall be required over all oversize holes for diaphragms.



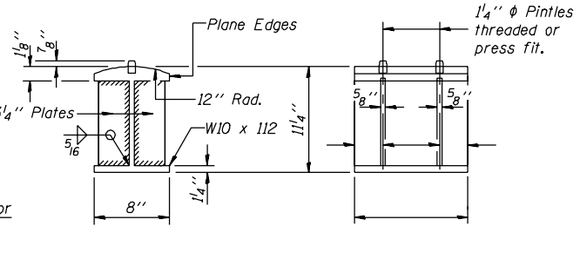


DETAIL OF SPLICE

Note:
See sheet for anchor bolt installation. Anchor bolts at fixed bearings may be built into the masonry.



DETAIL OF ROCKER AT



DETAIL OF BOLSTER AT

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

\- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

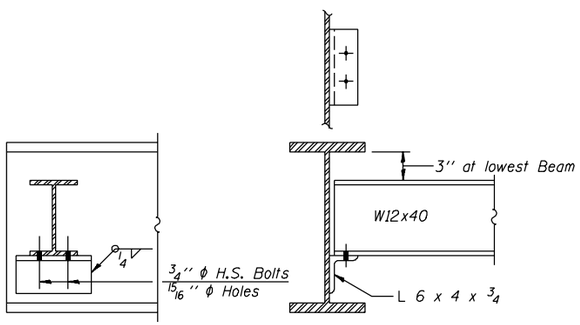
I-2-C 10-31-02

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

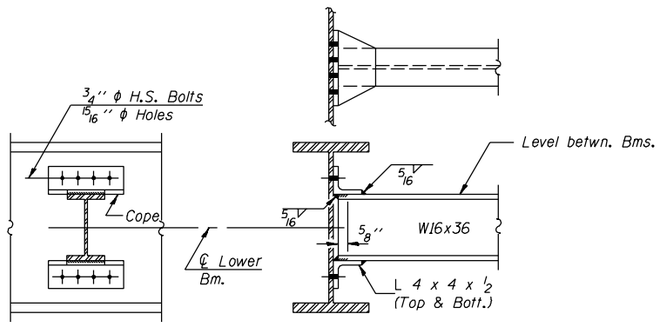
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #

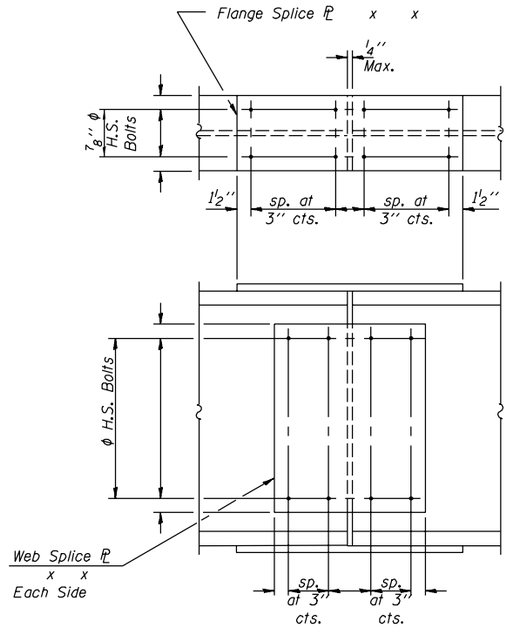


DIAPHRAGM D
Required



DIAPHRAGM D
Required

Note:
Two hardened washers shall be required over all oversize holes for diaphragms.



SPLICE

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

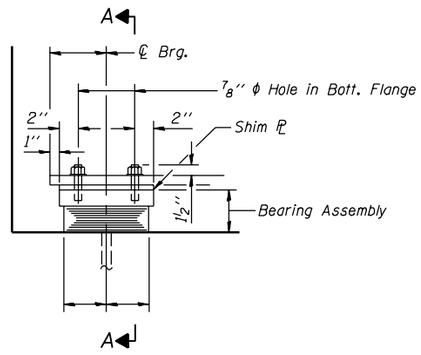
I-2-D 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

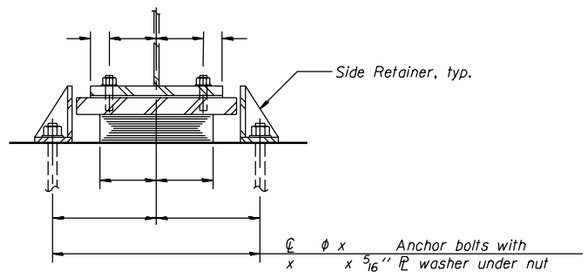
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #



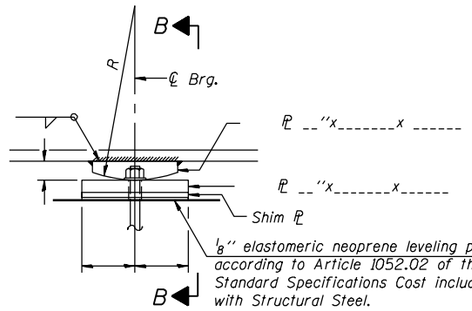
ELEVATION AT ABUT.



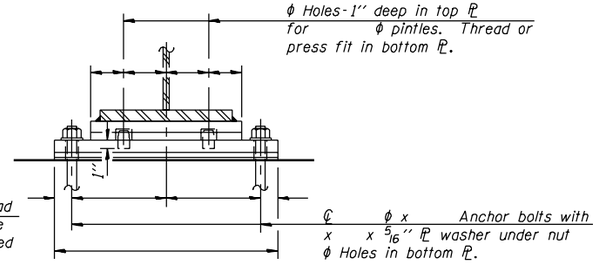
SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.

Notes:
Anchor bolts at fixed bearings may be built into the masonry.
See sheet for Anchor Bolt installation.

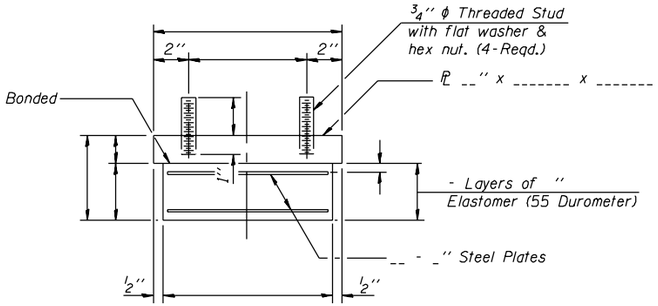


ELEVATION AT PIER

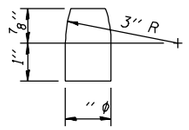


SECTION B-B

FIXED BEARING

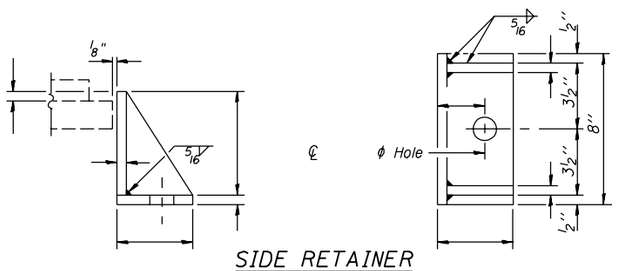


BEARING ASSEMBLY



PINTLE

Note:
Shim plates shall not be placed under Bearing Assembly.



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.
Weight included with Structural Steel.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

I-2-E1

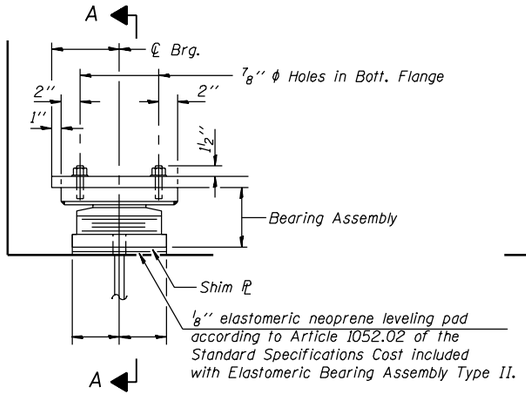
10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

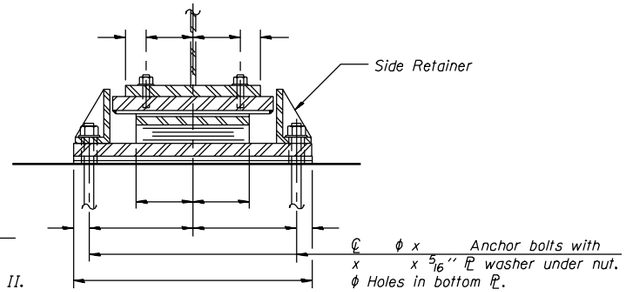
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #

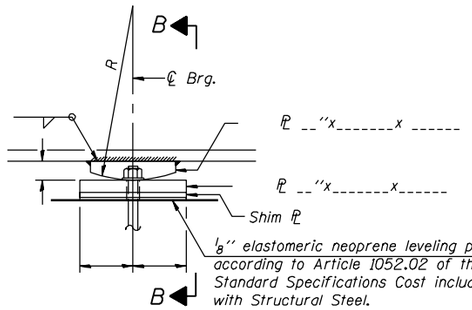


ELEVATION AT ABUT.

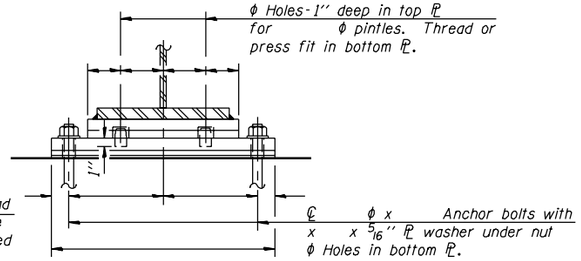


SECTION A-A

TYPE II ELASTOMERIC EXP. BRG.

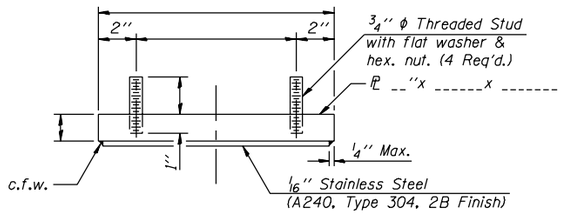


ELEVATION AT PIER

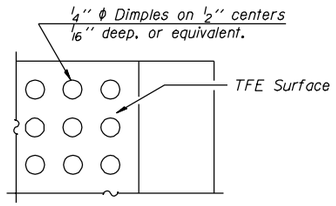


SECTION B-B

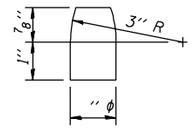
FIXED BEARING



TOP BEARING ASSEMBLY

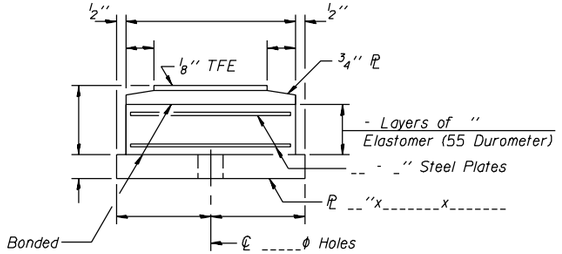


PLAN-TFE SURFACE

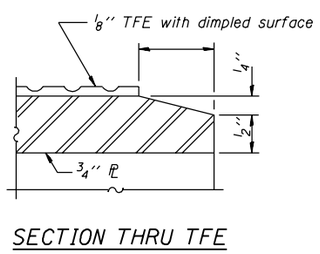


PINTLE

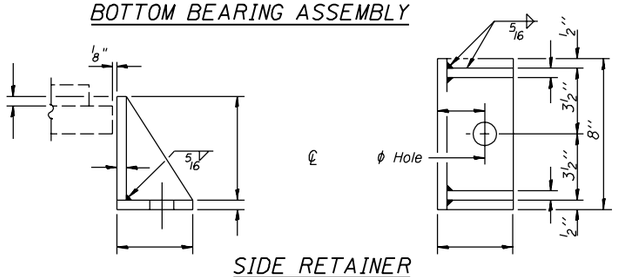
Notes:
Anchor bolts at fixed bearings may be built into the masonry.
See sheet for Anchor Bolt installation.



BOTTOM BEARING ASSEMBLY



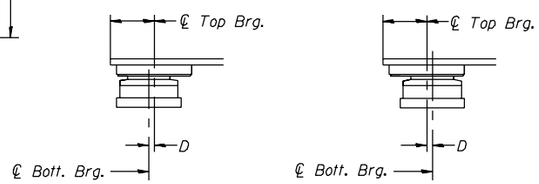
SECTION THRU TFE



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates. Weight included with Structural Steel.

Notes:
The 1/8" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.
Bonding of 1/8" TFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.



BELOW 50°F. (Move bott. brg. away from fixed brg.)

ABOVE 50°F. (Move bott. brg. toward fixed brg.)

SETTING ANCHOR BOLTS AT EXP. BRG.

D=1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type II	Each	

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED
ENGINEER OF BRIDGE DESIGN

PASSED
ENGINEER OF BRIDGES AND STRUCTURES

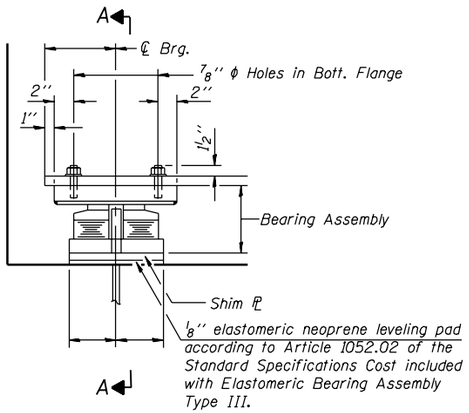
I-2-E2 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

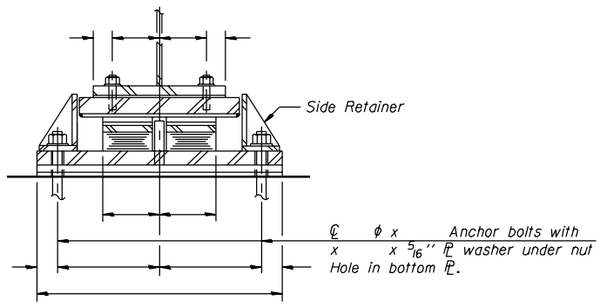
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #

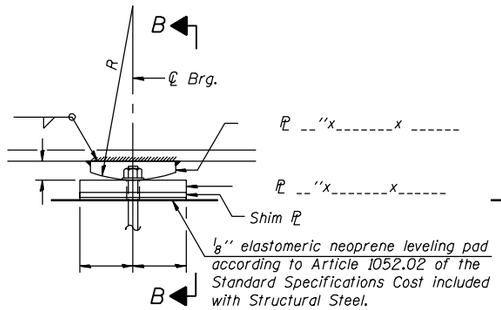


ELEVATION AT ABUT.

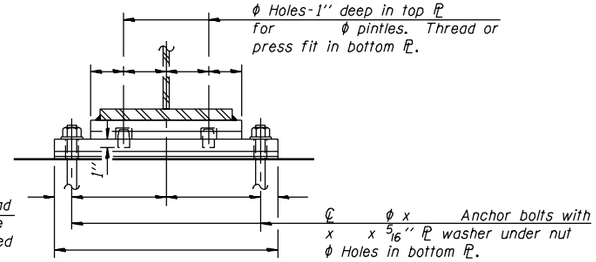


SECTION A-A

TYPE III ELASTOMERIC EXP. BRG.



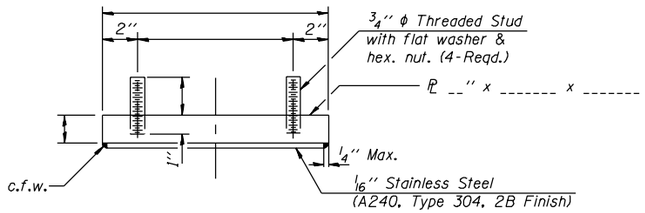
ELEVATION AT PIER



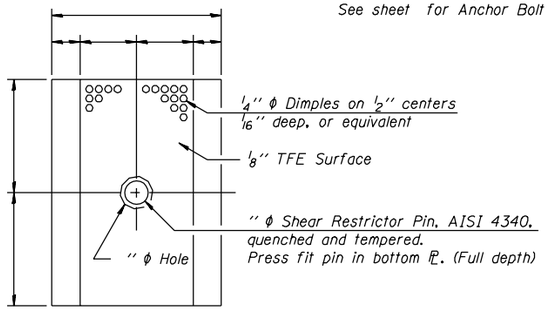
SECTION B-B

FIXED BEARING

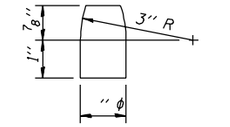
Notes:
Anchor bolts at fixed bearings may be built into the masonry.
See sheet for Anchor Bolt installation.



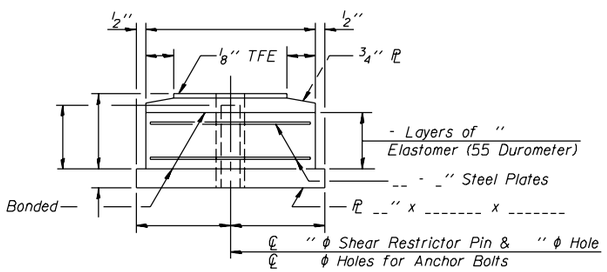
TOP BEARING ASSEMBLY



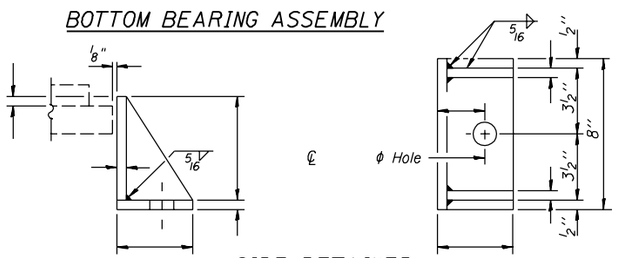
PLAN-TFE ELASTOMERIC BRG.



PINTLE

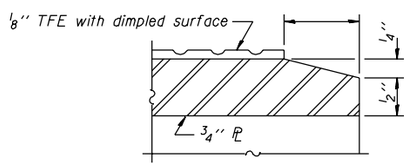


BOTTOM BEARING ASSEMBLY



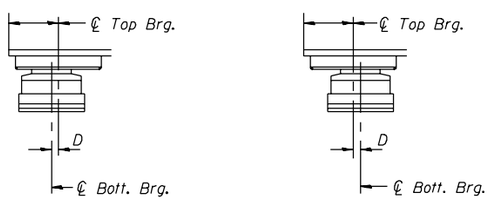
SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.
Weight included with Structural Steel.



SECTION THRU TFE

Notes:
The 1/8" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.
Bonding of 1/8" TFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.



BELOW 50° F.
(Move bott. brg. away from fixed brg.)

ABOVE 50° F.
(Move bott. brg. toward fixed brg.)

SETTING ANCHOR BOLTS AT EXP. BRG.

D=1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50° F.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type III	Each	

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED
ENGINEER OF BRIDGE DESIGN

PASSED
ENGINEER OF BRIDGES AND STRUCTURES

I-2-E3

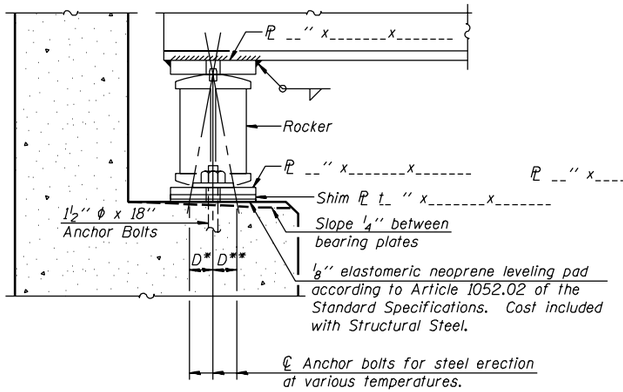
10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

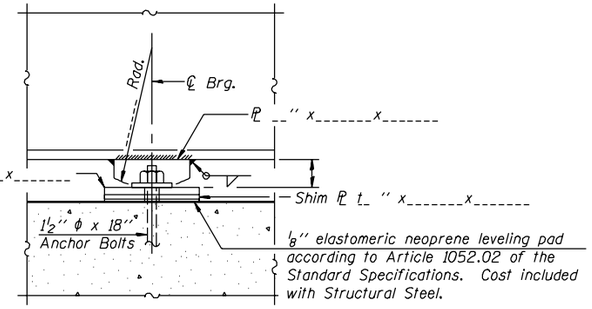
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

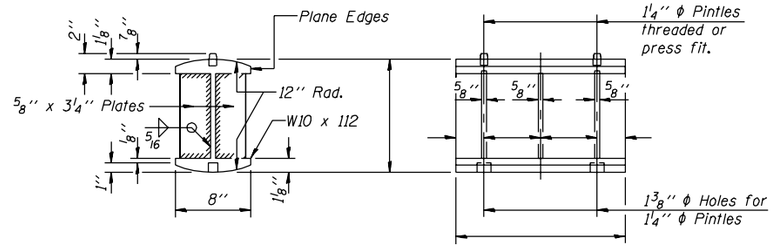
Contract #



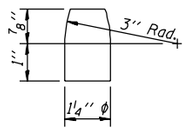
ELEVATION



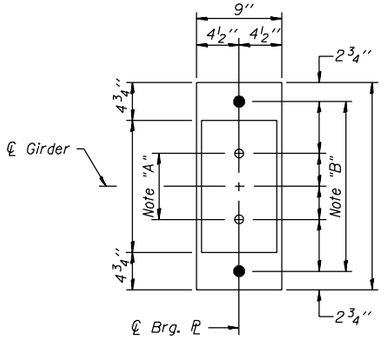
ELEVATION



ROCKER



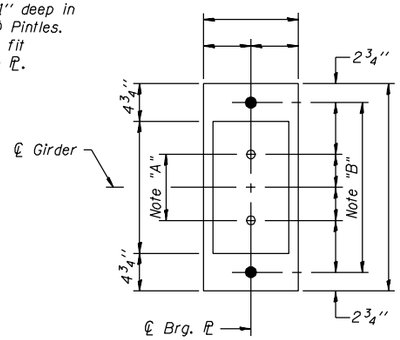
PINTLE



PLAN
AT ABUTMENT

Note "A"
1⅜" ϕ Holes-1" deep in top ℄ for 1¼" ϕ Pintles. Thread or press fit pintles in bottom ℄.

Note "B"
2" ϕ Holes for 1½" ϕ Anchor Bolts-3" x 3" x 5/16" ℄ washer under nut.



PLAN
AT PIER

INTERIOR GIRDER MOMENT TABLE			
		0.4 Sp. 1	Pier
Is	(in⁴)		
Ic	(in⁴)		
Ss	(in³)		
Sc	(in³)		
Z	(in³)		
D℄	(K/ft.)		
M℄	('K)		
s℄	(K/ft.)		
Ms℄	('K)		
M₺	('K)		
M (Imp)	('K)		
5/3(M₺+I)	('K)		
Ma	('K)		
Mu	('K)		
fs℄ non-comp	(k.s.i.)		
fs℄ (comp)	(k.s.i.)		
fs 5/3(₺+I)	(k.s.i.)		
fs (Overload)	(k.s.i.)		
fs (Total)	(k.s.i.)		
VR	(K)		

INTERIOR GIRDER REACTION TABLE			
		Abut.	Pier
R℄	(K)		
R₺	(K)		
Imp.	(K)		
R (Total)	(K)		

Is and Ss are the moment of inertia and section modulus of the steel section used in computing fs (Total & Overload).

Ic and Sc are the moment of inertia and section modulus of the composite section used in computing fs (Total & Overload).

VR is the maximum Live Load + Impact shear range in span.

Z is the plastic section modulus used to determine the fully plastic moments in the non-composite areas.

Ma (Applied Moment)=1.3[M℄ + Ms℄ + 5/3(M₺ + I)].

Mu is the Full Plastic Moment Capacity for Compact, Braced section.

fs (Overload) is the sum of the stresses due to M℄ + Ms℄ + 5/3(M₺ + I).

fs (Total) (Non-compact section) is the sum of the stresses due to 1.3[M℄ + Ms℄ + 5/3(M₺ + I)].

NOTES FOR SETTING OF ANCHOR BOLTS
AT EXPANSION BEARINGS

a.) D* (Side of brg. away from fixed brg.)
D* = ⅛" per each 100' of expansion for every 15° fall below the normal temp. of 50° F.
D** (Side of brg. toward fixed brg.)
D** = ⅛" per each 100' of expansion for every 15° rise above the normal temp. of 50° F.

b.) After girders have been erected and dimensions D* & D** determined, holes shall be drilled and anchor bolts shall be installed as shown on Sheet of . All fixed anchor bolts may be built into the masonry.

DESIGNED -	- 200
CHECKED -	EXAMINED
DRAWN -	ENGINEER OF BRIDGE DESIGN
CHECKED -	PASSED
	ENGINEER OF BRIDGES AND STRUCTURES

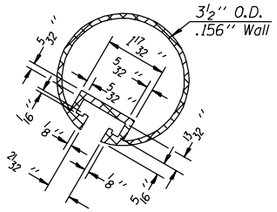
10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

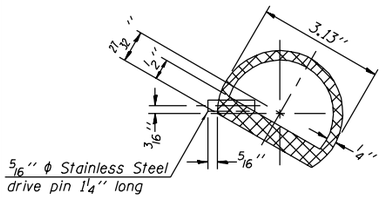
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. -
- SHEETS

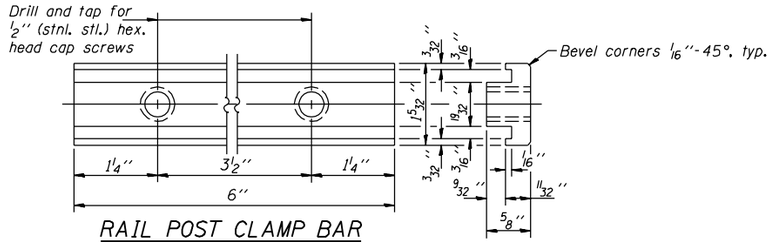
Contract #



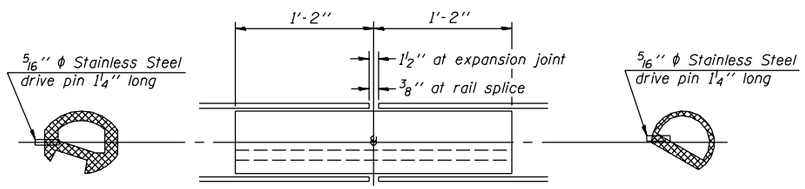
SECTION THRU TOP RAIL



SECTION THRU SPLICE
For Top Rail



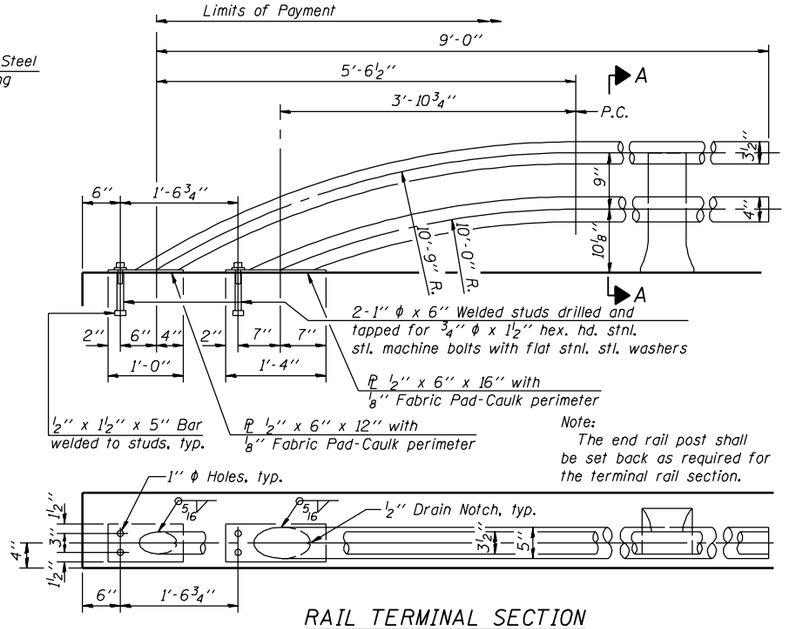
RAIL POST CLAMP BAR
For Top Rail



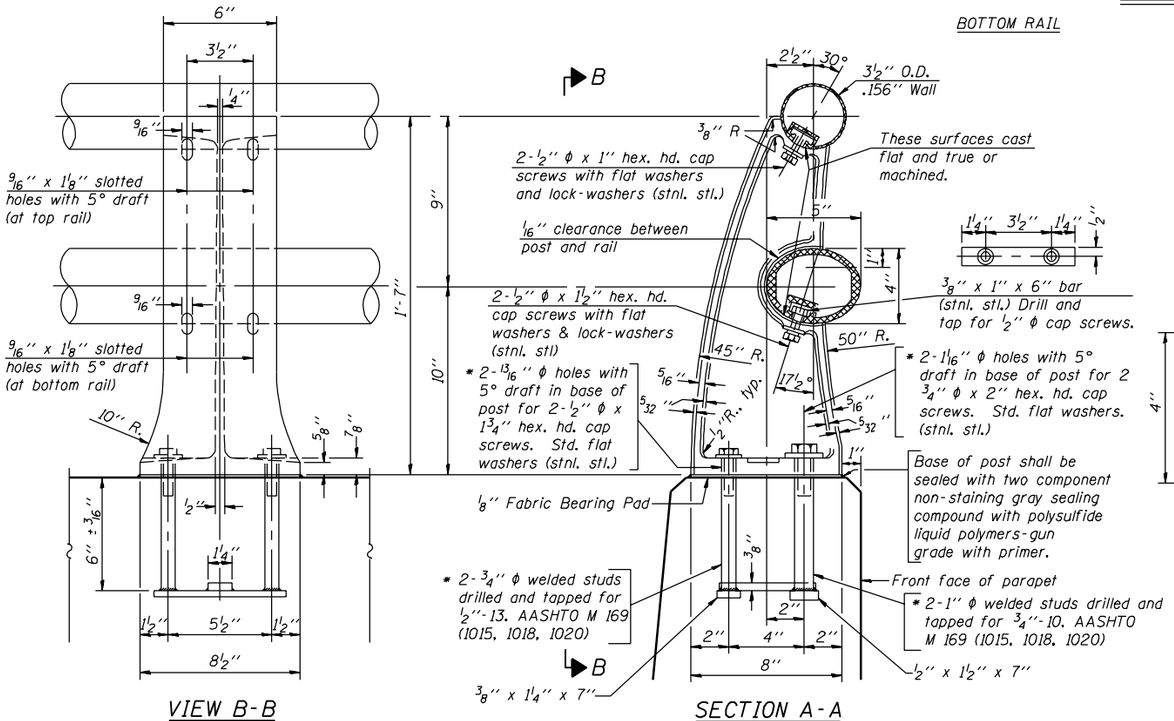
BOTTOM RAIL

RAIL SPLICE

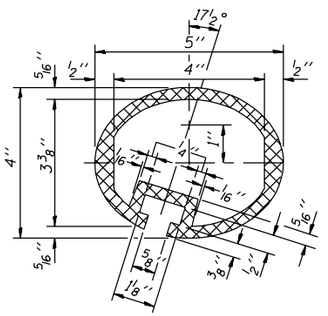
TOP RAIL



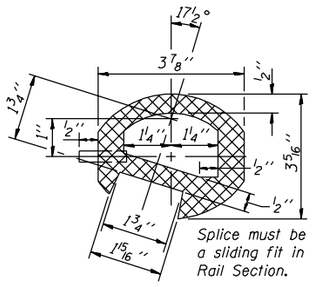
RAIL TERMINAL SECTION



RAIL POST DETAILS



SEC. THRU ELLIPTICAL
RAIL SECTION



SEC. THRU SPLICE

BILL OF MATERIAL

Item	Unit	Quantity
Aluminum Railing, Type L	Foot	

TYPE L
ALUMINUM RAILING

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

\- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

R-20 10-22-04

* In lieu of the cast-in-place anchor device shown, the Contractor has the option of drilling and epoxy grouting stainless steel anchor rods of the same diameter and grade as the specified cap screws. Embedment shall be according to the manufacturer's specifications.

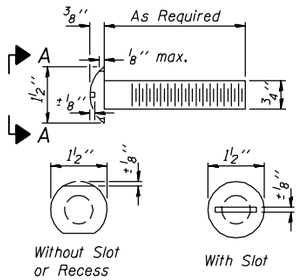
Notes:
All Posts shall be normal to parapet.
All Aluminum Alloy Extruded Rail shall be supplied in modular lengths of 30 feet, except at the end of bridge or over open joints in bridge deck where the rail shall be attached to a minimum of 2 posts. If the rail is on a horizontal curve of 2300 foot radius or less, the modular lengths may be reduced but shall be attached to a minimum of 2 posts.
All joints in rail shall be spliced per detail.
Provide 1-⅛" and 2-1/16" Aluminum Shims for 25% of the Posts. Rail elements shall be parallel to Grade-high spots will be ground and low spots shimmed.
Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for ALUMINUM RAILING, TYPE L.
Aluminum alloy rail shall conform to ASTM B 221 alloy 6061-T6 or 6351-T5 with min. yield 35 ksi, min. tensile 38 ksi, and elongation of 10% in 2 inches.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

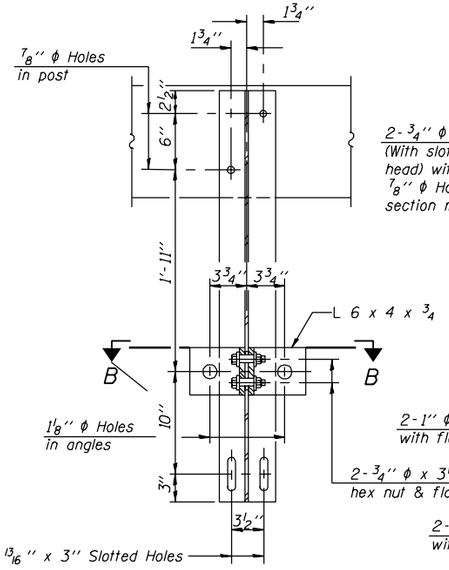
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-				
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

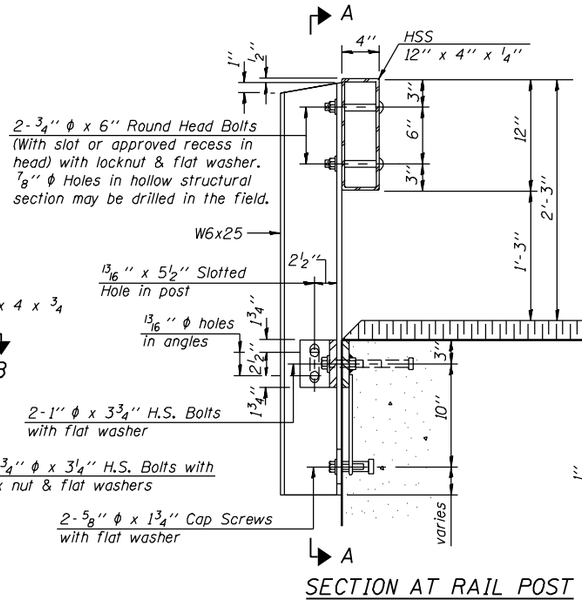
Contract #



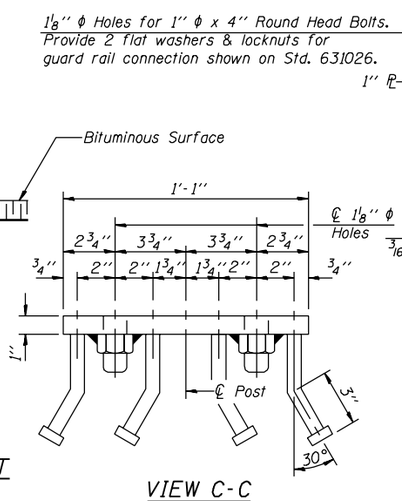
VIEW A-A
ROUND HEAD BOLT



SECTION A-A



SECTION AT RAIL POST



VIEW C-C

END OF RAIL DETAILS

NOTES

Hollow structural sections shall conform to the requirements of ASTM designation A 500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft-lbs at 0° F.

All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36 except posts and angles shall conform to AASHTO M 270, Grade 50.

Bolts, cap screws, and nuts shall conform to the requirements of ASTM designation A 307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M 164.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized according to AASHTO M 232.

All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication according to AASHTO M 111 and ASTM A 385. Galvanized rail shall not be painted.

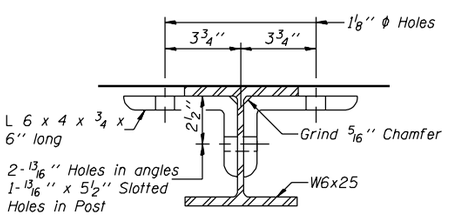
Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for STEEL RAILING, TYPE S-1.

All field drilled holes shall be coated with an approved zinc rich paint before erection.

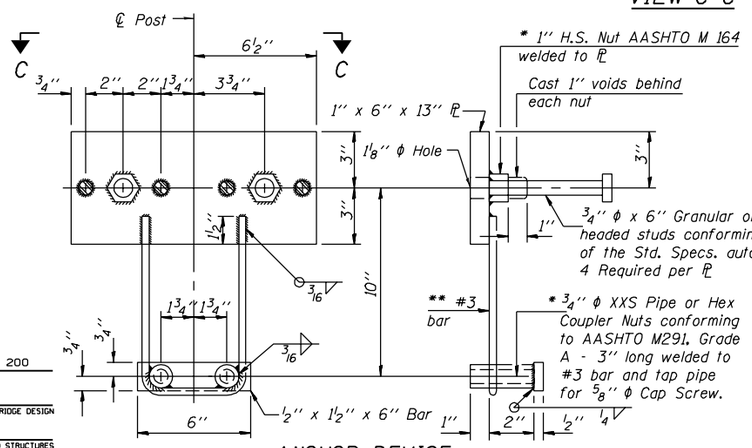
The lower portion of the post flange in contact with concrete shall receive two coats of asphalt paint conforming to Section 1060.07 Type II or place 1/8" fabric bearing pad between the post and concrete.

The 3/4" ϕ high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04(f)(2) of the Standard Specifications. The 1" ϕ high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The 5/8" ϕ cap screws in bottom of posts shall be tightened to a snug fit only.

For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with STEEL RAILING, TYPE S-1.



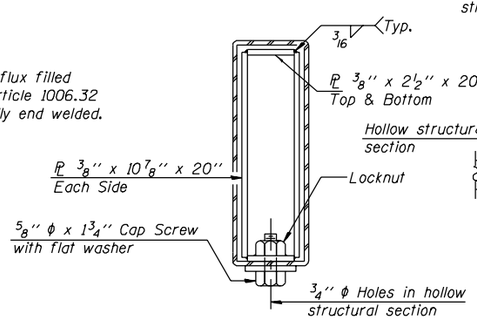
SECTION B-B



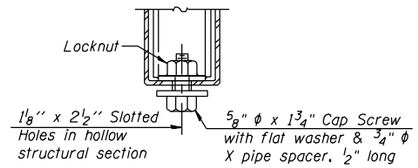
ANCHOR DEVICE

* Threaded areas shall be plugged or blocked off during casting of beam.

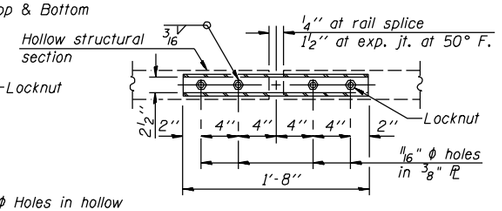
** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



SECTIONS AT RAIL SPLICE



RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE PL TYPICAL

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing Type S-1	Foot	

TYPE S-1
STEEL RAILING

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

\- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

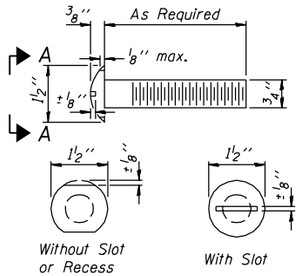
R-23A 10-22-04 (10'-9" Maximum Post Spacing)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

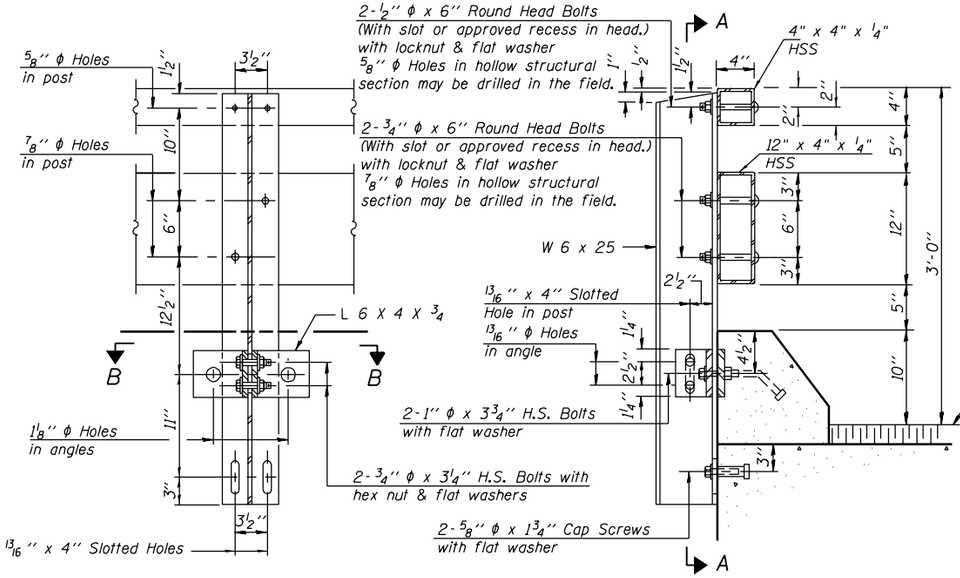
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-				
-	-	-		
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. -
- SHEETS

Contract #

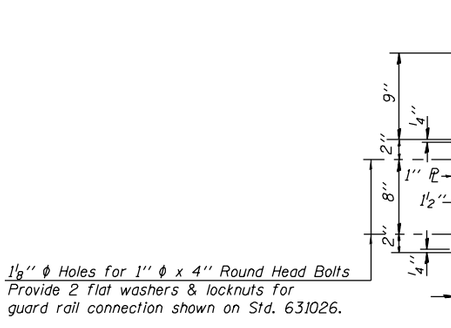


VIEW A-A
ROUND HEAD BOLT

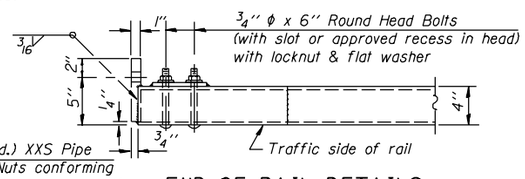


SECTION AT RAIL POST

* Threaded areas shall be plugged or blocked off during casting of beam.



1 1/8" ϕ Holes for 1" ϕ x 4" Round Head Bolts
Provide 2 flat washers & locknuts for guard rail connection shown on Std. 631026.



END OF RAIL DETAILS

NOTES

Hollow structural sections shall conform to the requirements of ASTM designation A 500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft-lbs at 0 °F.

All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36 except posts and angles shall conform to AASHTO M 270, Grade 50.

Bolts, cap screws, and nuts shall conform to the requirements of ASTM designation A 307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M 164.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized according to AASHTO M 232.

All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication according to AASHTO M 111 and ASTM A 385. Galvanized rail shall not be painted.

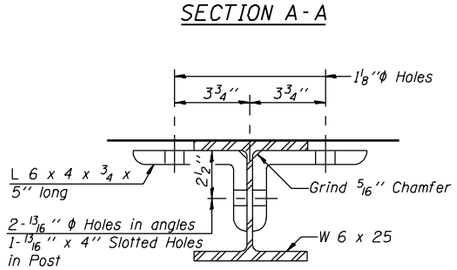
Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for STEEL RAILING, TYPE T-1.

All field drilled holes shall be coated with an approved zinc rich paint before erection.

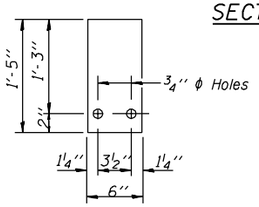
The lower portion of the post flange in contact with concrete shall receive two coats of asphalt paint conforming to Section 1060.07 Type II or place 1/8" fabric bearing pad between the post and concrete.

The 3/4" ϕ high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04(f)(2) of the Standard Specifications. The 1" ϕ high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The 5/8" ϕ cap screws in bottom of posts shall be tightened to a snug fit only.

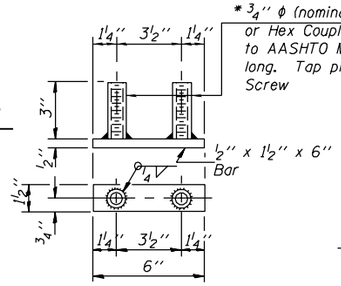
For multi-span bridges, sufficient 1/4" x 6" x 1'-5" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing.



SECTION A-A

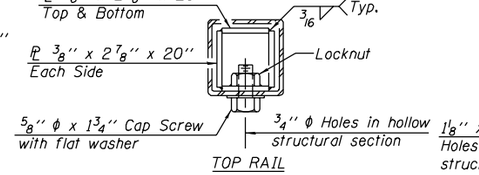


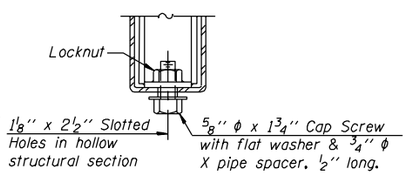
1/4" SHIM PLATE



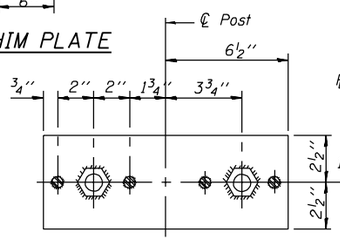
* 3/4" ϕ (nominal i.d.) XXS Pipe or Hex Coupler Nuts conforming to AASHTO M291, Grade A - 3" long. Tap pipe for 5/8" ϕ Cap Screw

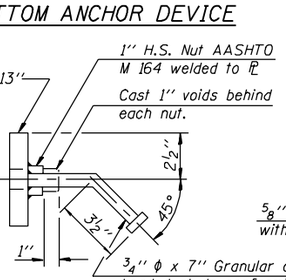
BOTTOM ANCHOR DEVICE



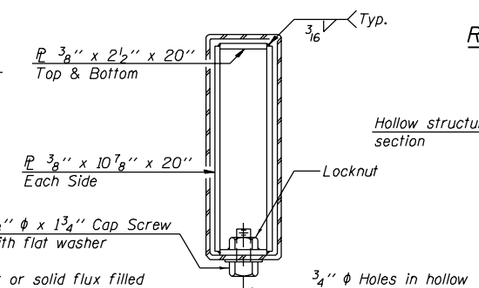


RAIL SPLICE CONNECTION AT EXPANSION JT.

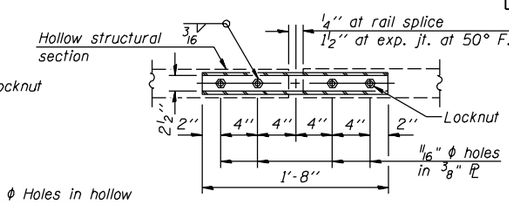




TOP ANCHOR DEVICE



SECTIONS AT RAIL SPLICE



PLAN-BOTT. SPLICE PL
TYPICAL

SECTION B-B

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing Type T-1	Foot	

TYPE T-1
STEEL RAILING

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

\- 200

EXAMINED

PASSED

ENGINEER OF BRIDGE DESIGN

ENGINEER OF BRIDGES AND STRUCTURES

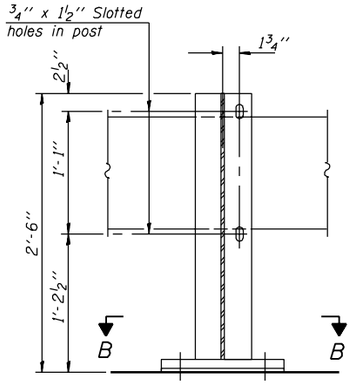
R-24A 10-22-04 (9'-6" Maximum Post Spacing)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

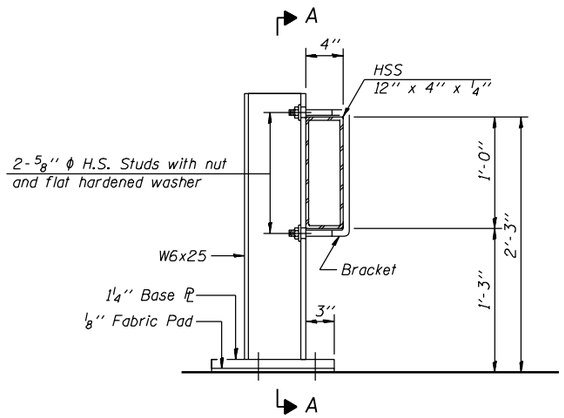
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #



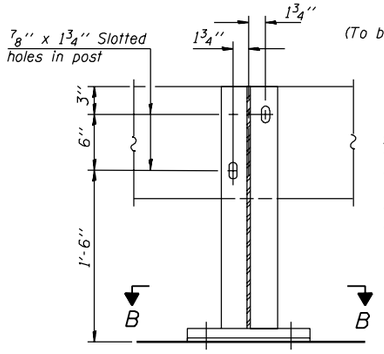
SECTION A-A



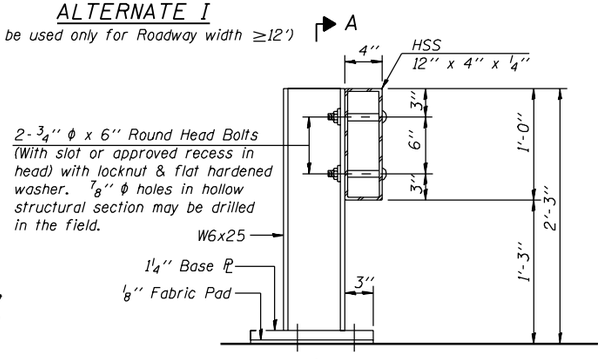
SECTION AT RAIL POST

ALTERNATE I

(To be used only for Roadway width ≥12')

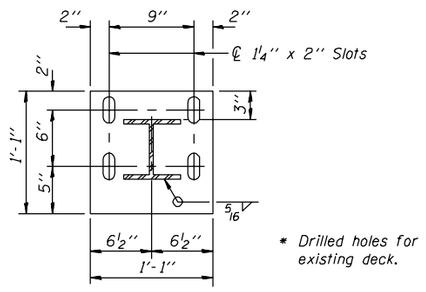


SECTION A-A



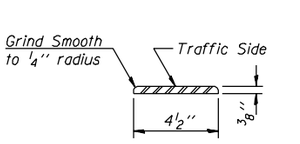
SECTION AT RAIL POST

ALTERNATE II

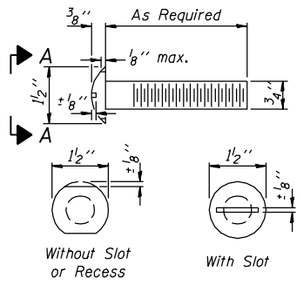


* Drilled holes for existing deck.

SECTION B-B

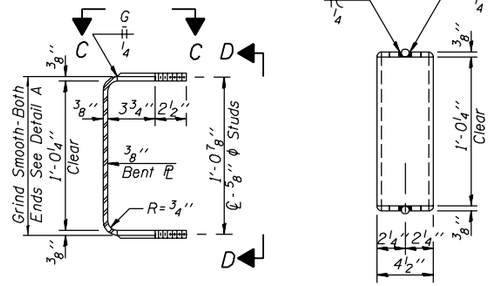


DETAIL A



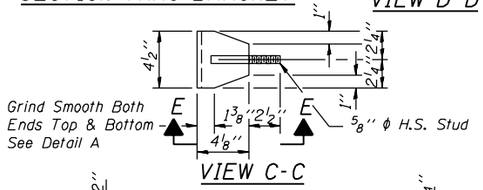
VIEW A-A

ROUND HEAD BOLT

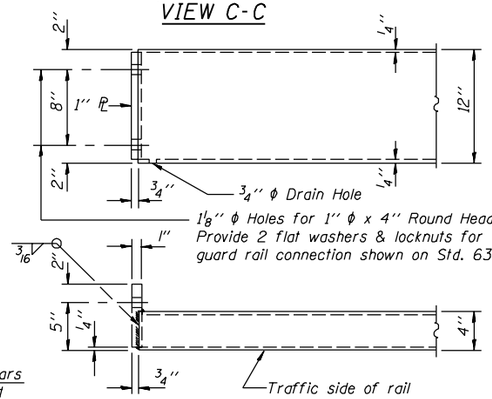


SECTION THRU BRACKET

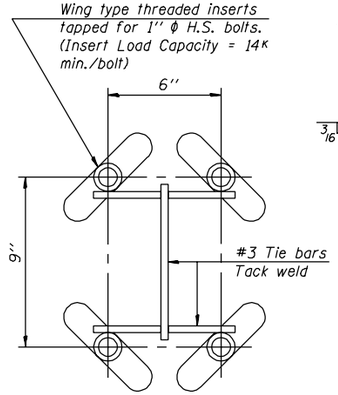
VIEW D-D



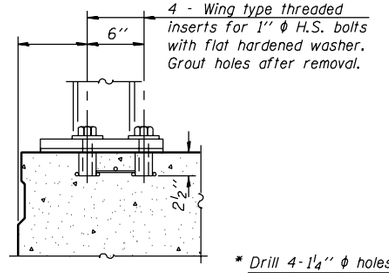
VIEW C-C



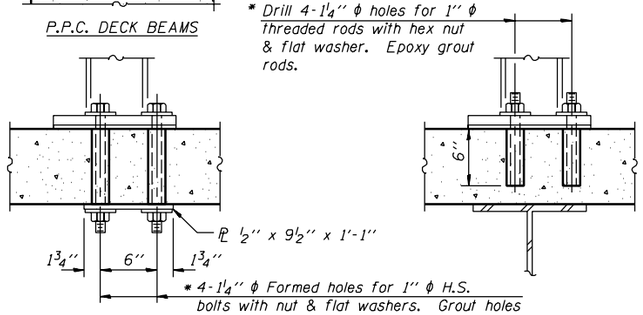
END OF RAIL DETAILS



INSERT DETAIL

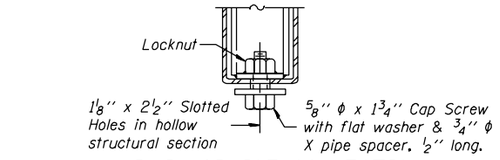


P.P.C. DECK BEAMS

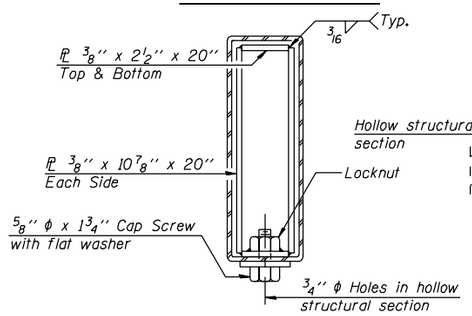


NEW & EXISTING DECKS

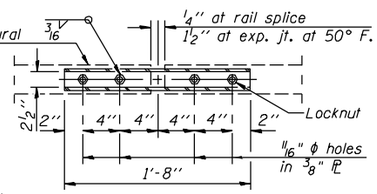
ANCHORAGE DETAILS



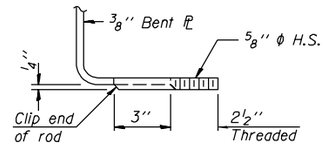
RAIL SPLICE CONNECTION AT EXPANSION JT.



SECTION AT RAIL SPLICE



PLAN-BOTT. SPLICE PL TYPICAL



VIEW E-E

NOTES

Hollow structural sections shall conform to the requirements of ASTM designation A 500 Grade B Structural Steel Tubing.

All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36 except posts and brackets shall conform to AASHTO M 270, Grade 50.

Bolts, cap screws, and nuts shall conform to the requirements of ASTM designation A 307 except for high strength bolts, threaded rods, studs, nuts and washers noted which shall conform to AASHTO M 164.

The bridge rail shall receive one shop coat of a steel prime paint.

The 1" ϕ high strength bolts or threaded rods used to connect the railposts shall be tightened according to Article 505.04(f)(2) of the Standard Specifications.

Temporary Bridge Rail shall be according to Section 514 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for Temporary Bridge Rail.

See sheet of for Rail Post spacing.

The contact surfaces between post flange, rail and inside face of bracket for Alternate I shall be free of all lubricants.

The nut for 5/8" ϕ high strength studs used in Alternate I to connect bracket to post shall be tightened to a snug fit and given an additional one half turn.

TEMPORARY BRIDGE RAIL POST SPACING

BILL OF MATERIAL

Item	Unit	Quantity
Temporary Bridge Rail	Foot	

TEMPORARY BRIDGE RAIL

DESIGNED -	- 200
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	

ENGINEER OF BRIDGE DESIGN

ENGINEER OF BRIDGES AND STRUCTURES

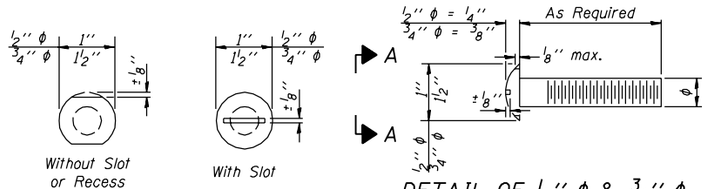
R-25 10-22-04 (10'-9" Maximum Post Spacing)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

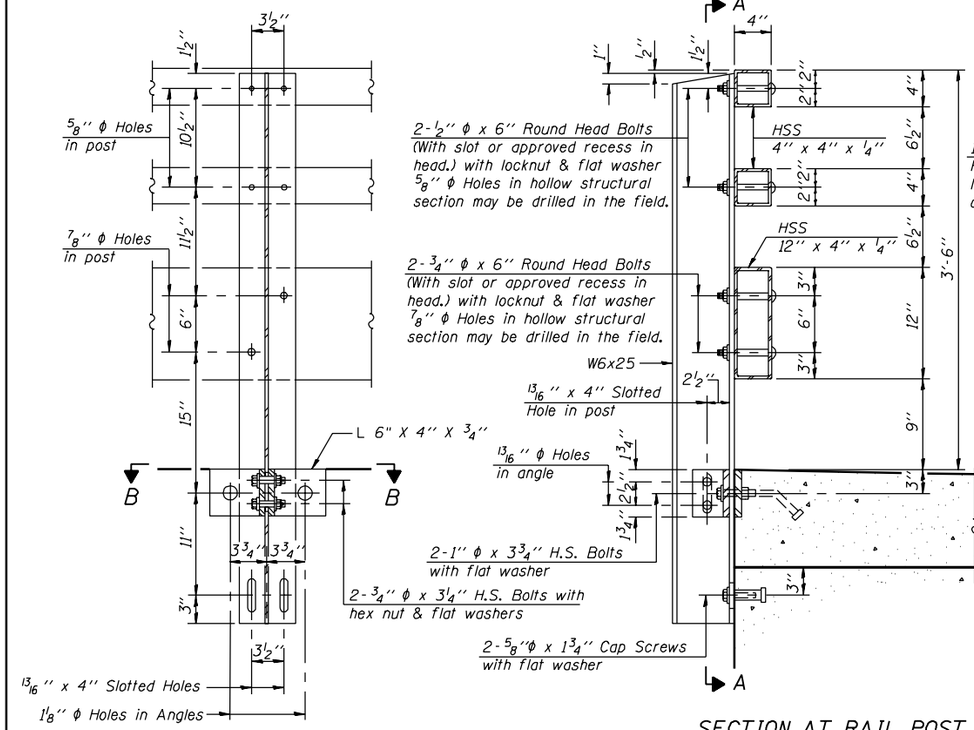
SHEET NO. -
- SHEETS

Contract #

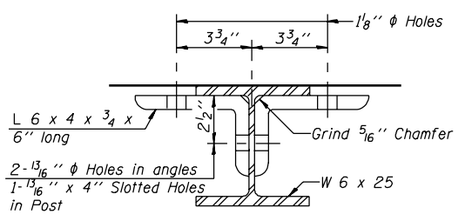


VIEW A-A

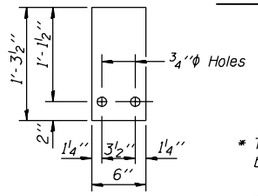
DETAIL OF 1/2" ϕ & 3/4" ϕ ROUND HEAD BOLTS



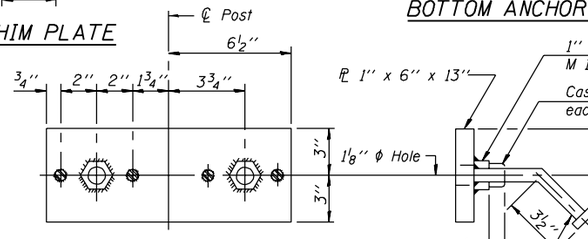
SECTION A-A



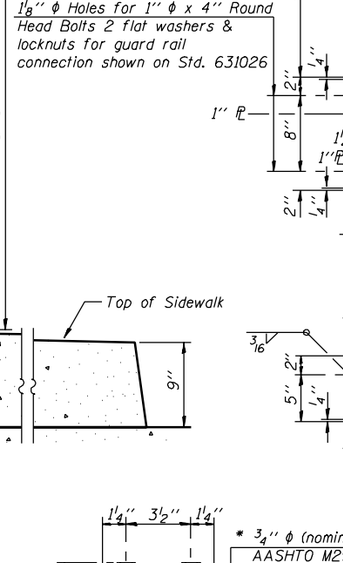
SECTION B-B



1/4" SHIM PLATE



TOP ANCHOR DEVICE

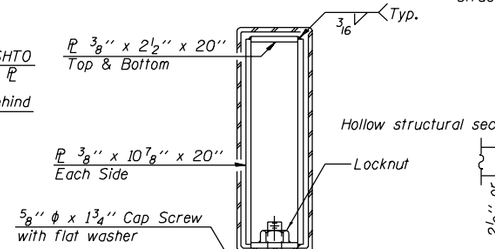


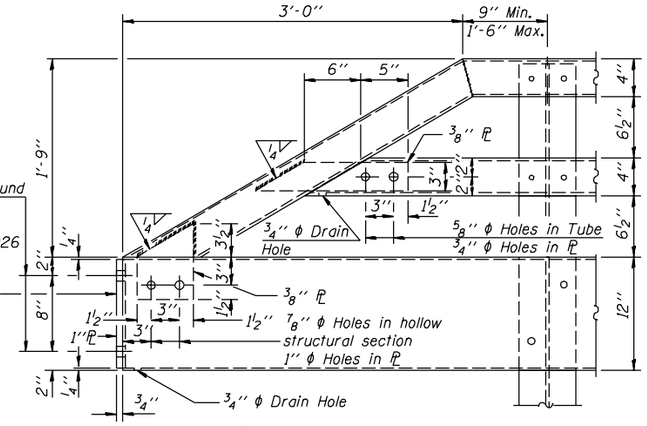
* 3/4" ϕ (nominal i.d.) XXS Pipe or Hex Coupler Nuts (Conforming to AASHTO M291, Grade A) 3" long. Tap pipe for 5/8" ϕ Cap Screw

* Threaded areas shall be plugged or blocked off during casting of beam.

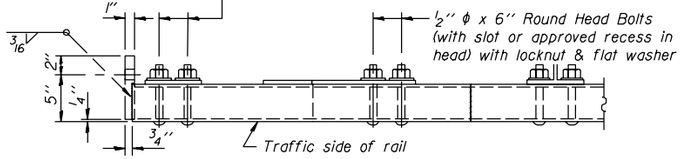
BOTTOM ANCHOR DEVICE

TOP ANCHOR DEVICE

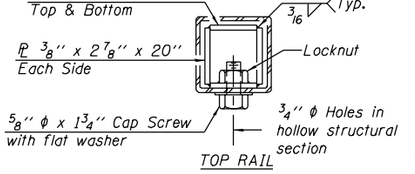




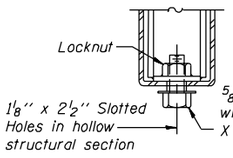
3/4" ϕ x 6" Round Head Bolts (with slot or approved recess in head) with locknut & flat washer



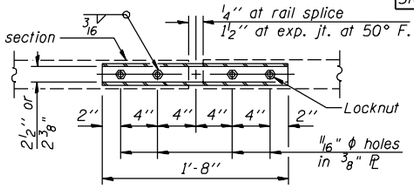
END OF RAIL DETAILS



SECTIONS AT RAIL SPLICE



RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE ℄ TYPICAL

NOTES

Hollow structural sections shall conform to the requirements of ASTM designation A 500, Grade B, Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft-lbs at 0°F.

All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36 except posts and angles shall conform to AASHTO M 270, Grade 50.

Bolts, cap screws, and nuts shall conform to the requirements of ASTM designation A 307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M 164.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized according to AASHTO M 232.

All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication according to AASHTO M 111 and ASTM A 385. Galvanized rail shall not be painted.

Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for STEEL RAILING, TYPE TP-1.

All field drilled holes shall be coated with an approved zinc rich paint before erection.

The lower portion of the post flange in contact with concrete shall receive two coats of asphalt paint conforming to Section 1060.07 Type II or place 1/8" fabric bearing pad between the post and concrete.

The 3/4" ϕ high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04(f)(2) of the Standard Specifications. The 1" ϕ high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The 5/8" ϕ cap screws in bottom of posts shall be tightened to a snug fit only.

For multi-span bridges, sufficient 1/4" x 6" x 1'-3 1/2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type TP-1	Foot	

TYPE TP-1
COMBINATION STEEL RAILING

DESIGNED -	
CHECKED -	- 200
DRAWN -	EXAMINED
CHECKED -	ENGINEER OF BRIDGE DESIGN
	PASSED
	ENGINEER OF BRIDGES AND STRUCTURES

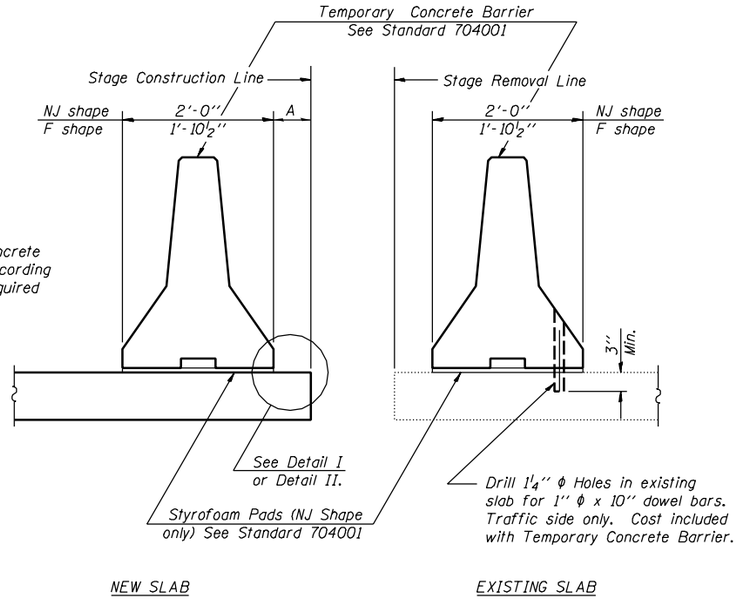
R-26 10-22-04 (10'-6" Maximum Post Spacing)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #



NEW SLAB EXISTING SLAB

SECTIONS THRU SLAB

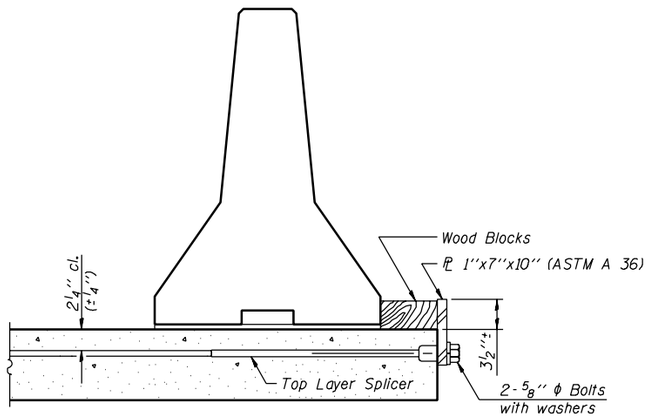
When "A" is 3'-6" or less, the temporary concrete barrier shall be anchored to the new slab according to Detail I or Detail II. No anchorage is required when "A" is greater than 3'-6".

NOTES

Detail I - With Bar Splicer or Couplers:
Connect one (1) 1"x7"x10" steel ℙ to the top layer of couplers with 2-⅝" ϕ bolts screwed to coupler at approximate ℄ of each barrier panel.

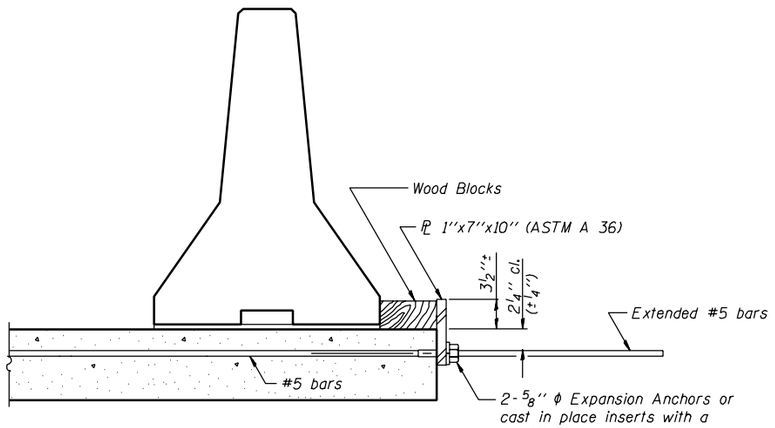
Detail II - With Extended Reinforcement Bars:
Connect one (1) 1"x7"x10" steel ℙ to the concrete slab with 2-⅝" ϕ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate ℄ of each barrier panel.

Cost of anchorage is included with Temporary Concrete Barrier.



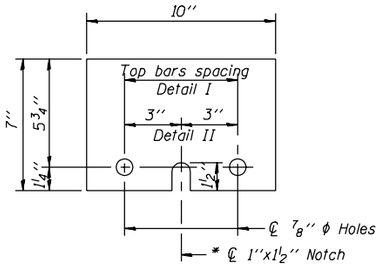
DETAIL I

The 1"x7"x10" Plate shall not be removed until Stage II Construction forms and reinforcement bars are in place.



DETAIL II

The 1"x7"x10" Plate shall not be removed until Stage II Construction forms and all reinforcement bars are in place and the concrete is ready to be placed.



ℙ 1"x7"x10"

* Required only with Detail II

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED
ENGINEER OF BRIDGE DESIGN

PASSED
ENGINEER OF BRIDGES AND STRUCTURES

R-27

10-22-04

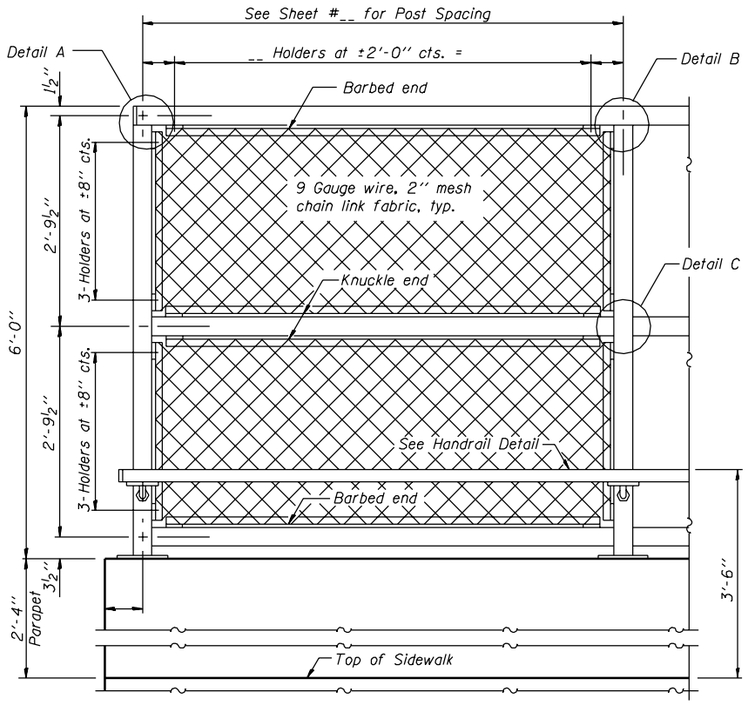
TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

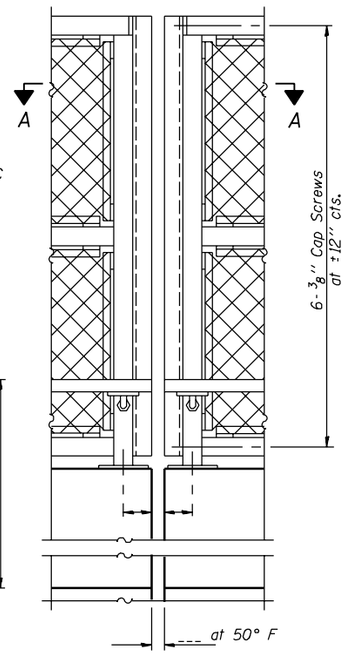
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

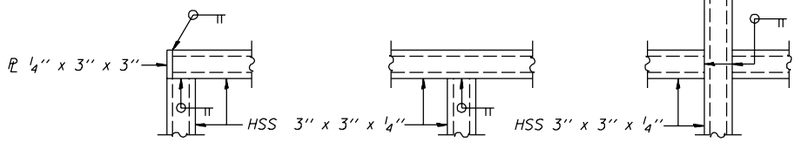
Contract #



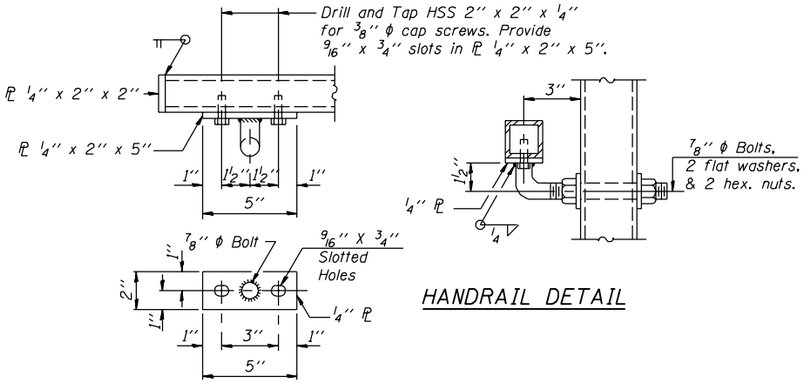
ELEVATION
(Inside Face)



ELEVATION
(At Expansion Joint)

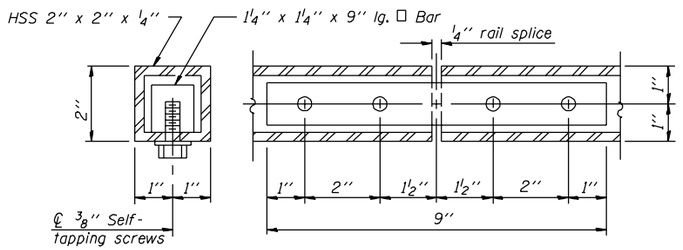


DETAIL A DETAIL B DETAIL C



HANDRAIL DETAIL

BASE ℄
(Handrail)



HANDRAIL SPLICE

NOTES

Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the Contract Unit Price per foot for Pedestrian Railing.

The 9 gauge fabric ties shall be according to Article 1006.27(d) of the Standard Specifications.

Installation of the chain link fabric shall be according to Section 664 of the Standard Specifications.

Hollow structural sections shall conform to the requirements of ASTM designation A 500, Grade B, structural steel tubing.

All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36.

The chain link fabric shall be placed along Pedestrian Side as shown on Section A-A.

Stretcher bars shall be used at all four sides of each panel.

If the option of drilling and epoxy grouting the anchor rods is chosen, the Contractor shall use the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes according to the manufacturer's recommendations and procedures. The capsule or the adhesive cartridge shall be sealed with pre-measured amounts of the adhesive chemical.

Space reinforcement to miss anchor rods.

The designer should add the appropriate note as applicable.

A. When railing is galvanized:

All posts, railing, splices, anchor devices, and bent plates shall be galvanized after shop fabrication according to AASHTO M 111 and ASTM A 385. All bolts, nuts, washers, and anchor rods shall be galvanized according to AASHTO M 232 except stainless steel bolts as noted.

Vent holes for galvanizing shall be placed in the posts and rails at locations that will not allow the accumulation of moisture in the members.

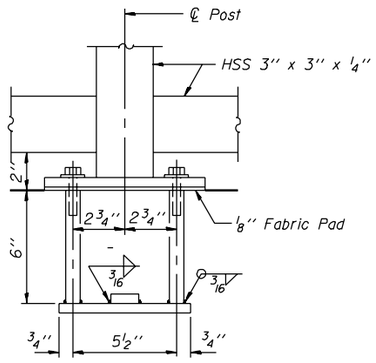
The chain link fabric shall conform to the requirements of Article 1006.27(a)(1)a, b or c of the Standard Specifications.

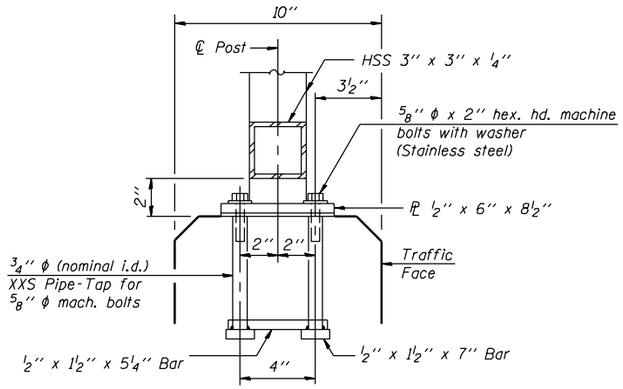
B. When railing is painted:

All post, railing, splices, anchor devices, and bent plates shall be painted using the (List the appropriate paint system for Structural Steel).

The chain link fabric shall conform to the requirements of Article 1006.27(a)(1)d of the Standard Spec's.

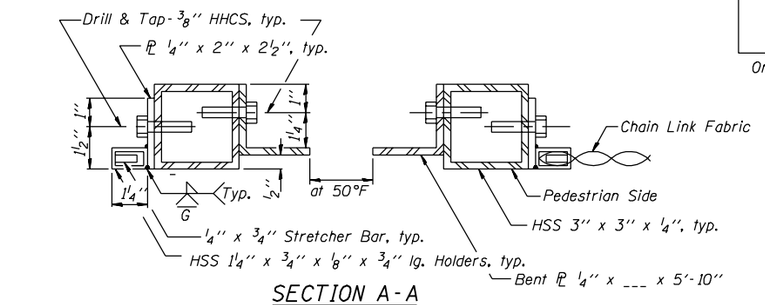
Only one of the above notes would appear on Contract Plans.



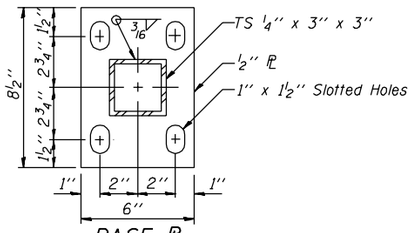


ANCHOR BOLT DETAILS

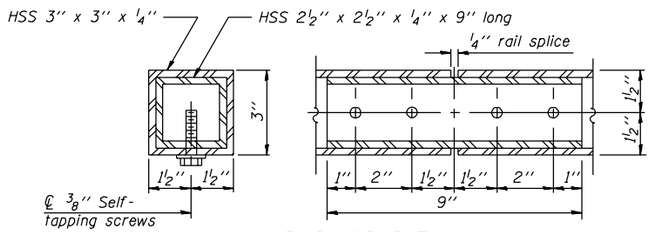
In lieu of the cast-in-place anchor device shown, the Contractor has the option of drilling and epoxy grouting ⅝" ϕ anchor rods. Embedment shall be according to the manufacturer's specifications.



SECTION A-A



BASE ℄



RAIL SPLICE

BILL OF MATERIAL

Item	Unit	Quantity
Pedestrian Railing	Foot	

PEDESTRIAN RAILING

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

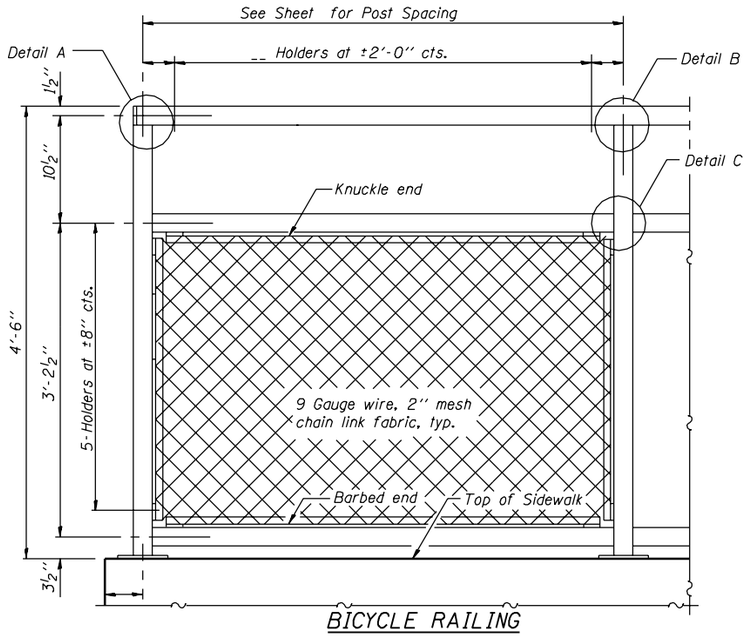
R-28 10-22-04 (10'-0" Maximum Post Spacing)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

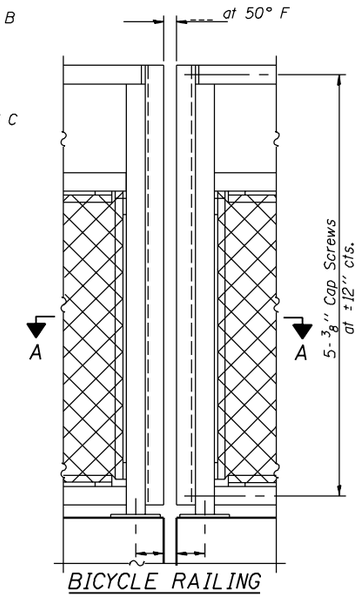
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

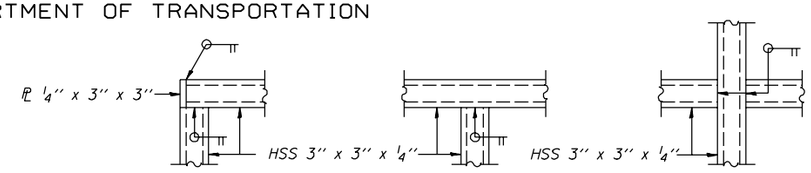
Contract #



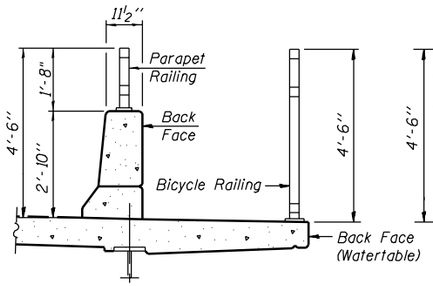
BICYCLE RAILING



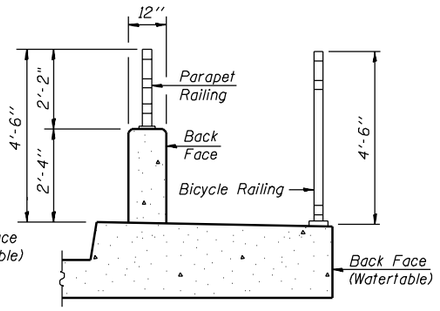
BICYCLE RAILING



DETAIL A DETAIL B DETAIL C



SECTION THRU DECK



SECTION THRU SIDEWALK

NOTES

Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the Contract Unit Price per foot for Bicycle Railing.

The 9 gauge fabric ties shall be according to Article 1006.27 (d) of the Standard Specifications.

Installation of the chain link fabric shall be according to Section 664 of the Standard Specifications.

Hollow structural sections shall conform to the requirements of ASTM designation A 500, Grade B, structural steel tubing.

All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36.

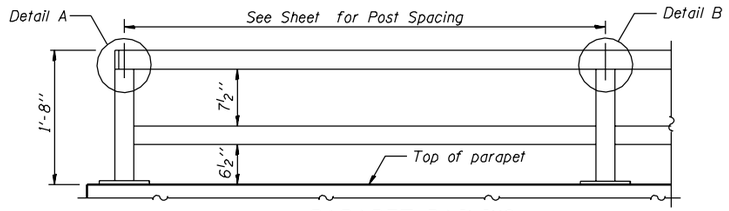
The Parapet Railing, furnished and installed shall not be paid for separately but shall be included in the unit bid price for Bicycle Railing.

The chain link fabric shall be placed along Bicycle Side as shown on Section A-A.

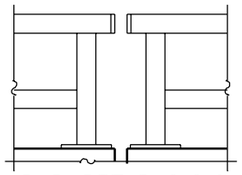
Stretcher bars shall be used at all four sides of each panel.

If the option of drilling and epoxy grouting the anchor rods is chosen, the Contractor shall use the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes according to the manufacturer's recommendations and procedures. The capsule or the adhesive cartridge shall be sealed with pre-measured amounts of the adhesive chemical.

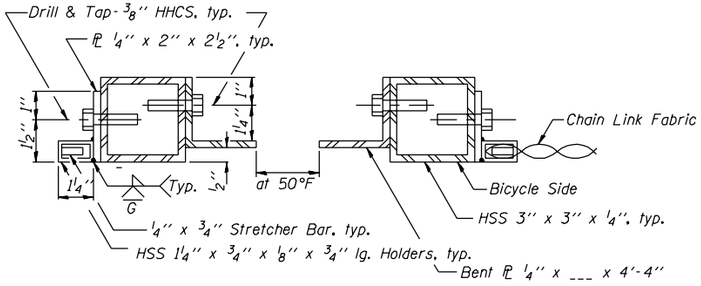
Space reinforcement to miss anchor rods.



PARAPET RAILING ELEVATION
(Inside Face of Two Element Rail)



PARAPET RAILING ELEVATION AT EXPANSION JOINT
(Two Element Rail Shown - Three Element Rail Similar)



SECTION A-A

Railing shall be galvanized after shop fabrication according to AASHTO M 111 and ASTM A 385. All bolts, nuts, washers, and anchor rods shall be galvanized according to AASHTO M 232 except stainless steel bolts as noted.

Vent holes for galvanizing shall be placed in the posts and rails at locations that will not allow the accumulation of moisture in the members.

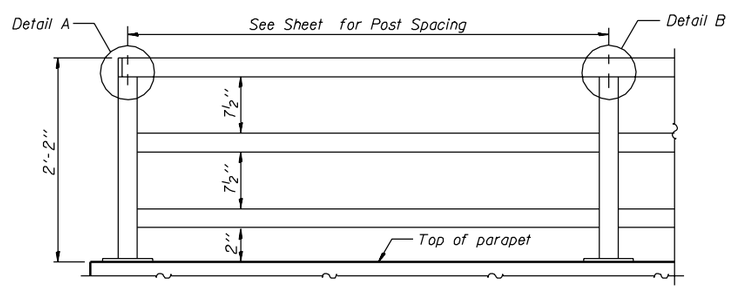
The chain link fabric shall conform to the requirements of Article 1006.27(a)(1)a, b or c of the Standard Specifications.

B. When railing is painted:

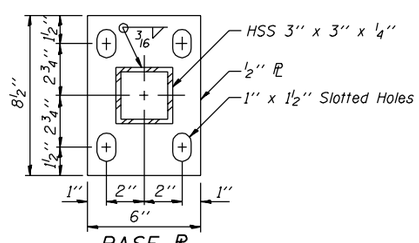
All post, railing, splices, anchor devices, and bent plates shall be painted using the (List the appropriate paint system for Structural Steel).

The chain link fabric shall conform to the requirements of Article 1006.27(a)(1)d of the Standard Spec's.

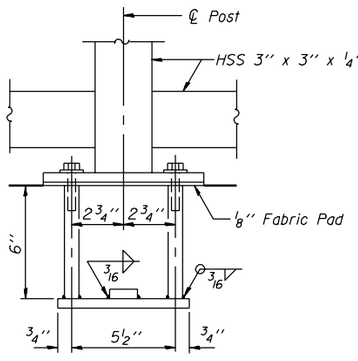
Only one of the above notes would appear on Contract Plans.



PARAPET RAILING ELEVATION
(Inside Face of Three Element Rail)

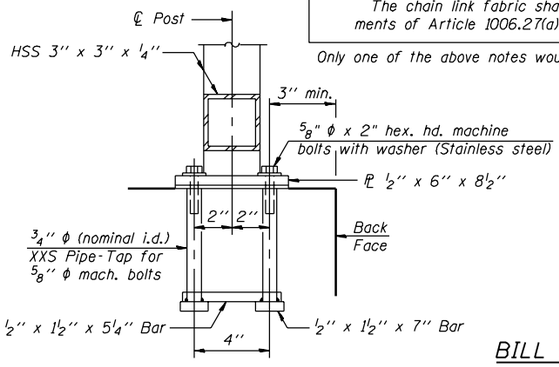


BASE PL



ANCHOR BOLT DETAILS

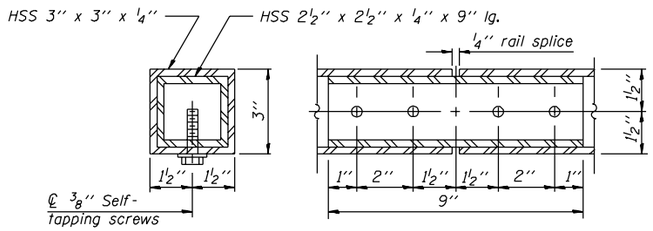
In lieu of the cast-in-place anchor device shown, the Contractor has the option of drilling and epoxy grouting ⅝" ϕ anchor rods. Embedment shall be according to the manufacturer's specifications.



BILL OF MATERIAL

Item	Unit	Quantity
Bicycle Railing	Foot	

BICYCLE RAILING



RAIL SPLICE

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

R-29

10-22-04 (10'-0" Maximum Post Spacing)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-				
-	-	-		
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. -
- SHEETS

Contract #NOTES

Hollow structural sections shall conform to the requirements of ASTM designation A 500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft-lbs at 0° F.

All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36 except posts and angles shall conform to AASHTO M 270, Grade 50.

Bolts, cap screws and nuts shall conform to the requirements of ASTM designation A 307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M 164.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized according to AASHTO M 232.

All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication according to AASHTO M 111 and ASTM A 385. Galvanized rail shall not be painted.

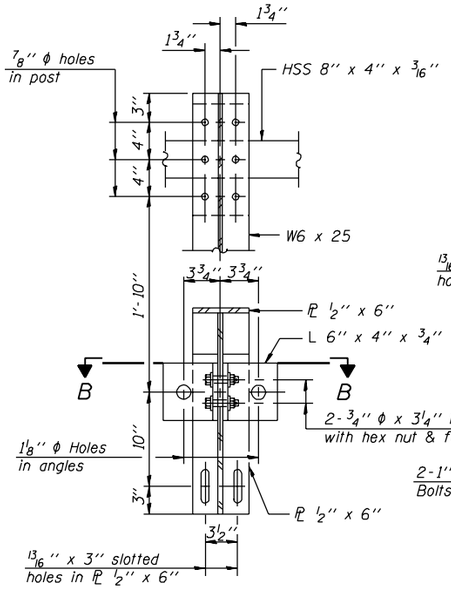
Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for STEEL RAILING, TYPE WT.

All field drilled holes shall be coated with an approved zinc rich paint before erection.

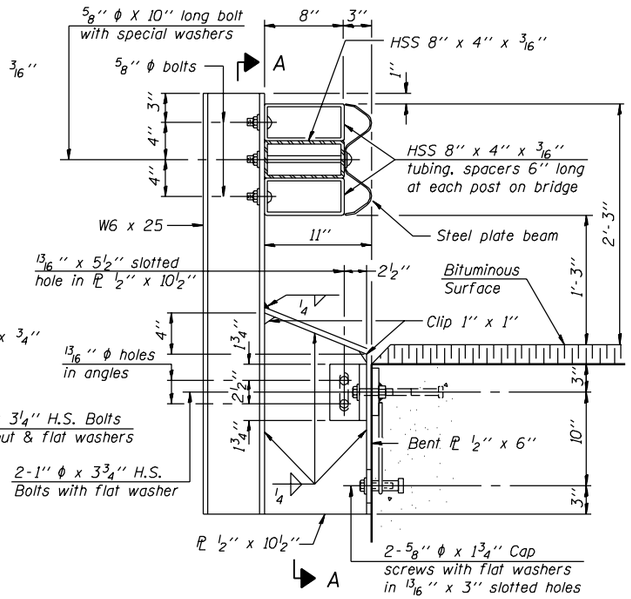
The 1/2" x 6" plates that come in contact with concrete shall receive two coats of asphalt paint conforming to Section 1060.07 Type II or place 1/8" fabric bearing pads between the plates and concrete.

The 3/4" high strength bolts used to connect the 6" x 4" x 3/4" angles to the post shall be tightened according to Article 505.04(f)(2) of the Standard Specifications. The 1" ϕ high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The 5/8" ϕ cap screws in bottom of posts shall be tightened to a snug fit only.

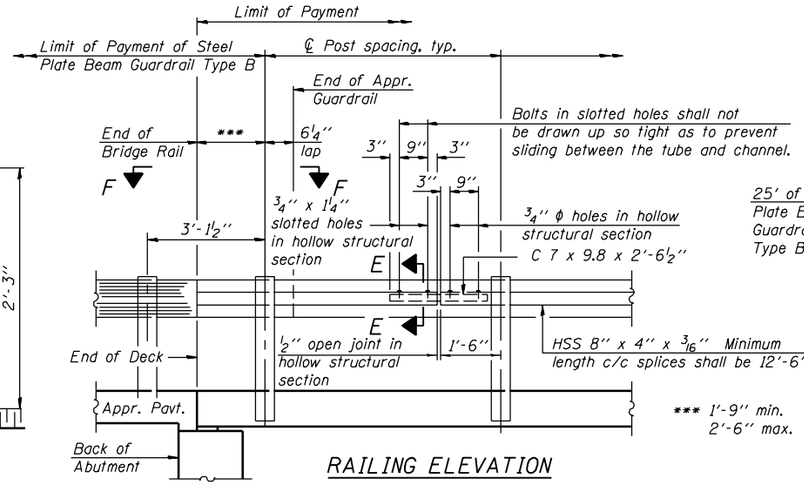
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing.



SECTION A-A

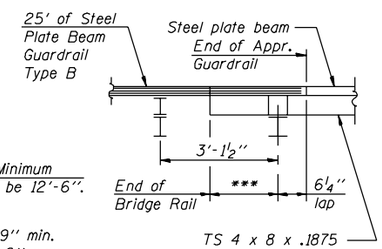


SECTION AT RAIL POST

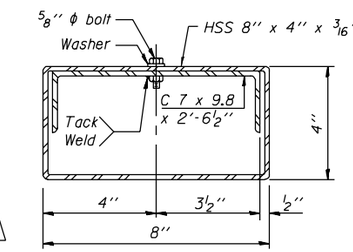


RAILING ELEVATION

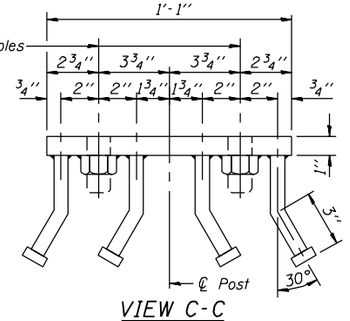
*** 1'-9" min.
2'-6" max.



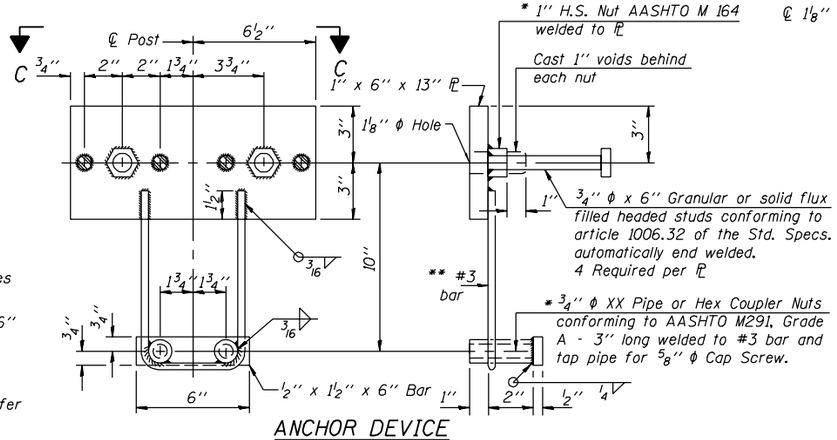
VIEW F-F



SECTION E-E



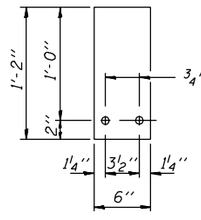
VIEW C-C



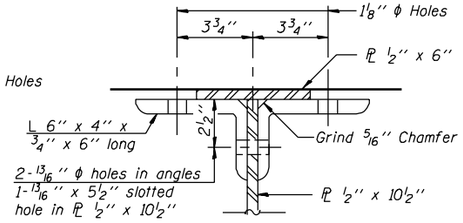
ANCHOR DEVICE

* Threaded areas shall be plugged or blocked off during casting of beam.

** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



1/4" SHIM PLATE



SECTION B-B

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type WT	Foot	

TYPE WT
STEEL RAILING

DESIGNED -	-	200
CHECKED -	EXAMINED	
DRAWN -	PASSED	ENGINEER OF BRIDGE DESIGN
CHECKED -		ENGINEER OF BRIDGES AND STRUCTURES

R-30

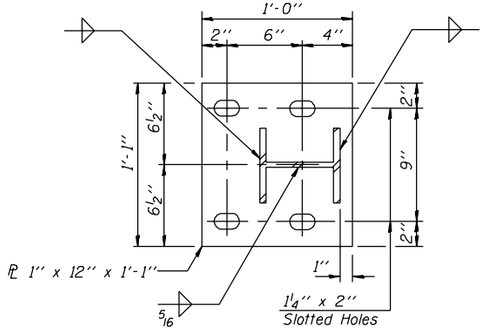
10-22-04 6'-3" Maximun Post Spacing

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

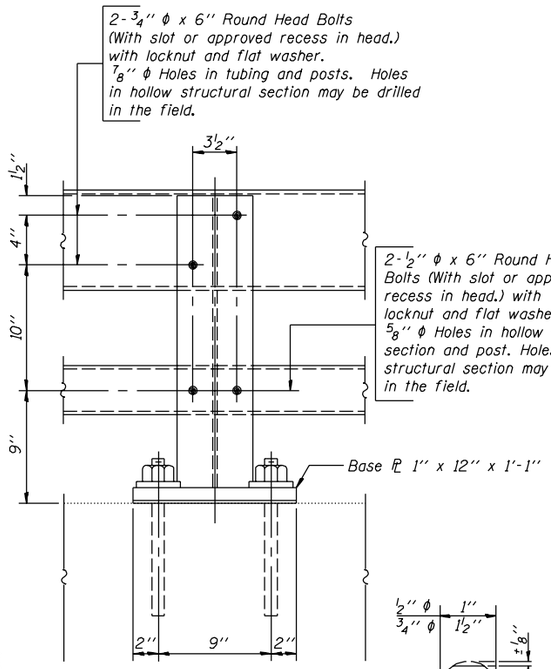
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

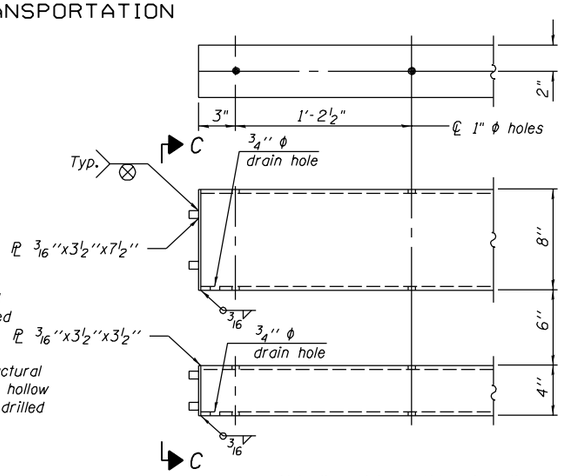
Contract #



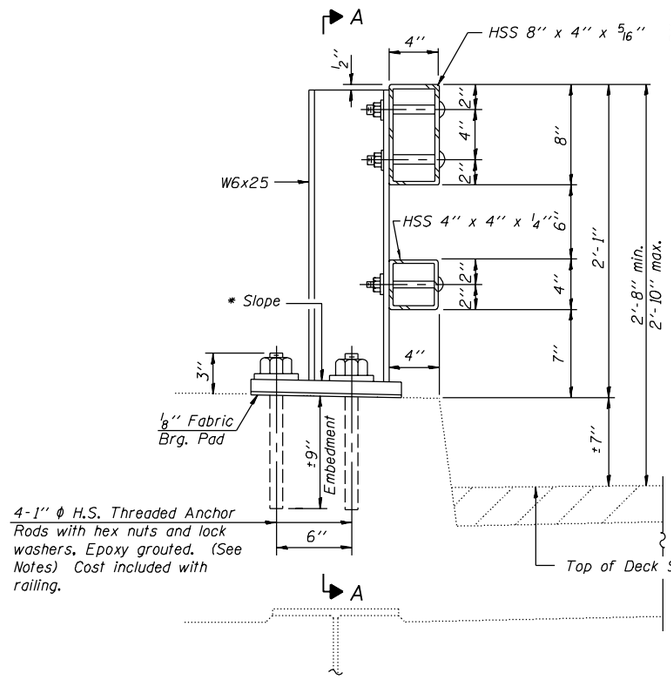
BASE PLATE DETAIL



SECTION A-A

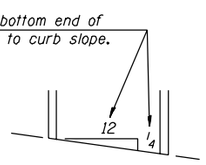


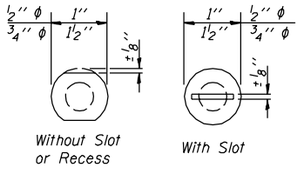
END OF RAIL DETAILS



SECTION AT RAIL POST

* Cut bottom end of post to curb slope.

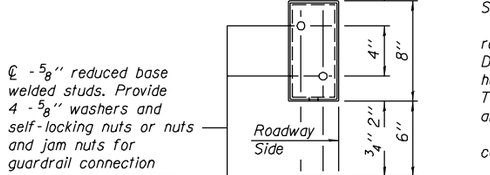


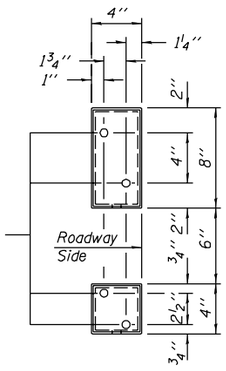


Without Slot or Recess

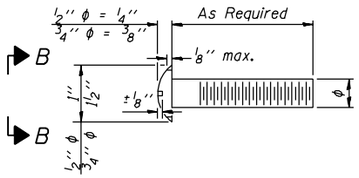
With Slot

VIEW B-B

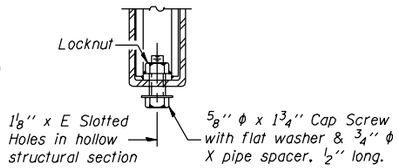




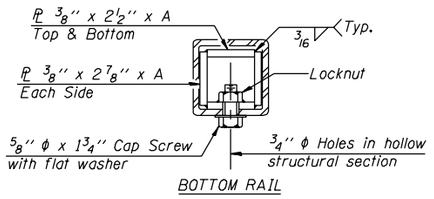
VIEW C-C



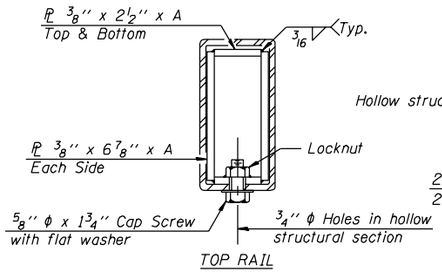
DETAIL OF ½" ϕ & ¾" ϕ ROUND HEAD BOLTS



RAIL SPLICE CONNECTION AT EXPANSION JT.



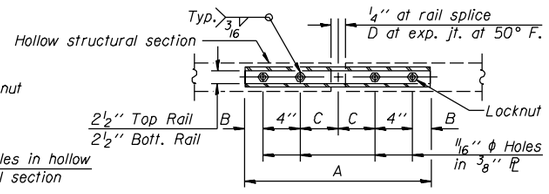
BOTTOM RAIL



TOP RAIL

SECTIONS AT RAIL SPLICE

(6'-3" Maximum Post Spacing)



PLAN-BOTT. SPLICE PL TYPICAL

NOTES

Hollow structural sections shall conform to the requirements of ASTM designation A 500, Grade B, Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft-lbs at 0°F.

All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36 except posts shall conform to AASHTO M 270, Grade 50.

Bolts, cap screws and nuts shall conform to the requirements of ASTM designation A 307 except that threaded rods, nuts and washers shall conform to AASHTO M 164.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized according to AASHTO M 232.

All posts, railing, rail splices and anchor rods shall be galvanized after shop fabrication according to AASHTO M 111 and ASTM A 385. Galvanized rail shall not be painted.

Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for Steel Bridge Rail.

All field drilled holes shall be coated with an approved zinc rich paint before erection.

Posts shall not be located closer than 1'-3" to an existing bridge expansion joint or end of bridge.

Steel Bridge Rail expansion joint shall be provided between any two (2) posts which span a bridge expansion joint. Bolts located at expansion joint shall be provided with locknuts and shall be tightened only to a point that will allow railing movement.

Provide one ⅛" and two 1/16" steel shims for 25% of the posts. Shims shall be similar to base plates in size and holes.

Expansion joint width shall be "D" at 50° F and shall be adjusted for other temperatures according to Article 503.10(c) of the Standard Specifications.

The Contractor shall use the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes according to the manufacturer's recommendations and procedures. The capsule or the adhesive cartridge shall be sealed with pre-measured amounts of the adhesive chemical.

Nuts for 1" ϕ threaded anchor rods connecting the base plate to the concrete shall be tightened to a snug fit and given an additional ⅛ turn.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Bridge Rail	Foot	

SPLICE DIMENSIONS

T	D	A	B	C	E
≤4"	2½"	1'-8"	2"	4"	2½"
>4"≤6½"	3¾"	2'-0"	2½"	5½"	3½"
>6½"≤9"	5"	2'-4"	3½"	6½"	9"
>9"≤13"	7"	2'-10"	4½"	8½"	11"
Rail Splice	¼"	1'-8"	2"	4"	—

T = Total movement at expansion joint as shown on the design plans.

STEEL BRIDGE RAIL
CURB MOUNTED
(2399)

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

\- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

R-31 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #

NOTES

Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the Contract Unit Price per foot for Bridge Fence Railing.

The 9 gauge fabric ties shall be according to Article 1006.27(d) of the Standard Specifications.

Installation of the chain link fabric shall be according to Section 664 of the Standard Specifications.

Hollow structural sections shall conform to the requirements of ASTM designation A 500, Grade B, structural steel tubing.

All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36.

The chain link fabric shall be placed along Pedestrian Side as shown on Section A-A.

Stretcher bars shall be used at each end of fabric.

A minimum of one complete turn is required at ends of all fabric ties.

If the option of drilling and epoxy grouting the anchor rods is chosen, the Contractor shall use the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes according to the manufacturer's recommendations and procedures. The capsule or the adhesive cartridge shall be sealed with pre-measured amounts of the adhesive chemical.

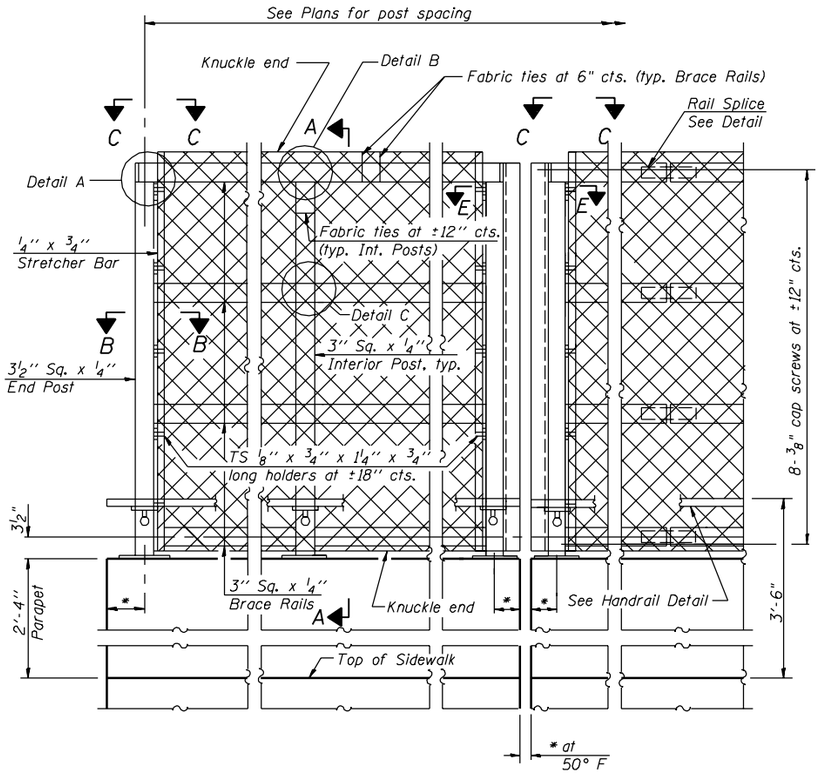
Space reinforcement to miss anchor rods.

The designer should add the appropriate note as applicable.

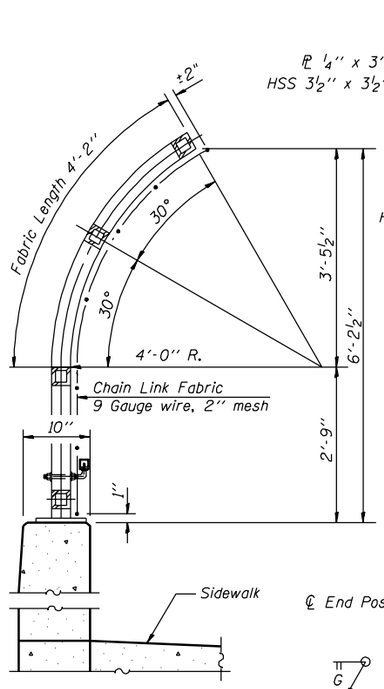
A. When railing is galvanized:
All posts, railing, splices, anchor devices, and plates shall be galvanized after shop fabrication according to AASHTO M 111 and ASTM A 385. All bolts, nuts, washers, and anchor rods shall be galvanized according to AASHTO M 232 except stainless steel bolts as noted.
Vent holes for galvanizing shall be placed in the posts and rails at locations that will not allow the accumulation of moisture in the members.
The chain link fabric shall conform to the requirements of Article 1006.27(a)(1)a, b or c of the Standard Specifications.

B. When railing is painted:
All post, railing, splices, anchor devices, and plates shall be painted using the (List the appropriate paint system for Structural Steel).
The chain link fabric shall conform to the requirements of Article 1006.27(a)(1)d of the Standard Spec's.

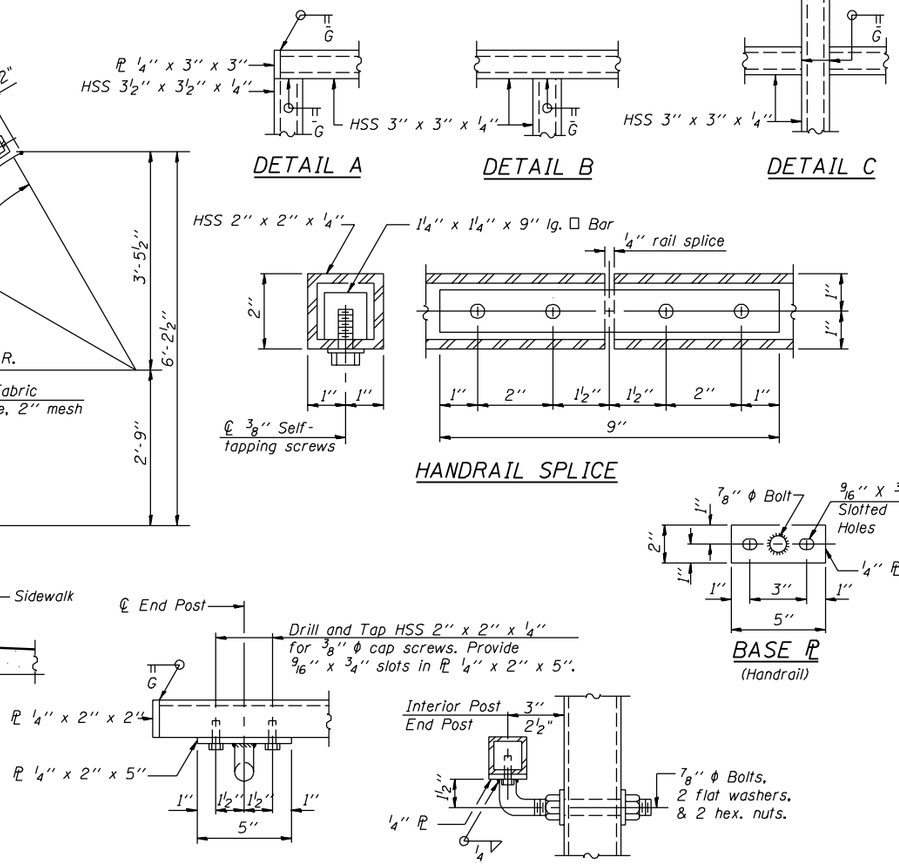
Only one of the above notes would appear on Contract Plans.



ELEVATION
(Inside Face)



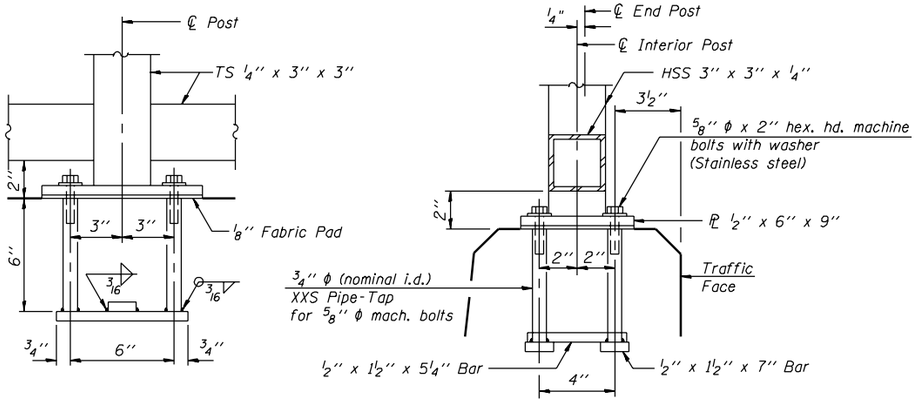
SECTION A-A



HANDRAIL DETAIL

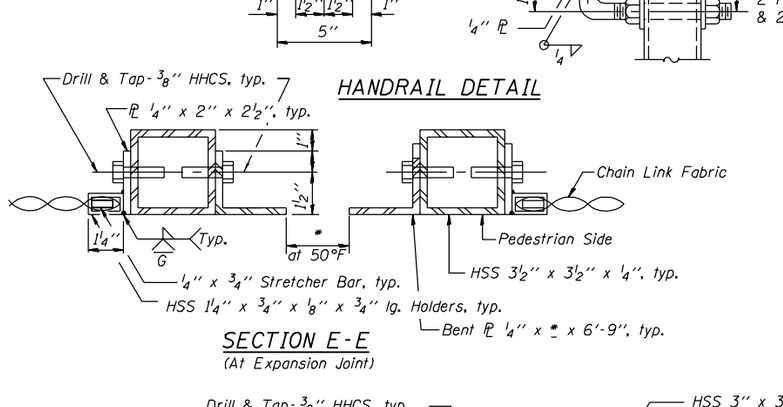
HANDRAIL SPLICE

BASE PL
(Handrail)

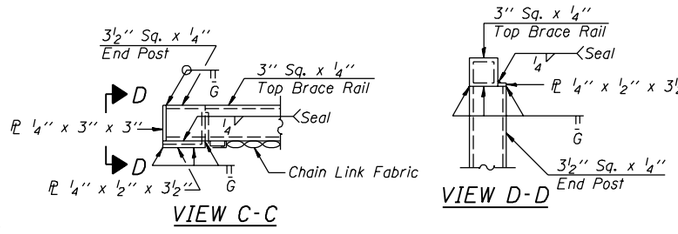


ANCHOR BOLT DETAILS

In lieu of the cast-in-place anchor device shown, the Contractor has the option of drilling and epoxy grouting 5/8" ϕ anchor rods. Embedment shall be according to the manufacturer's specifications.

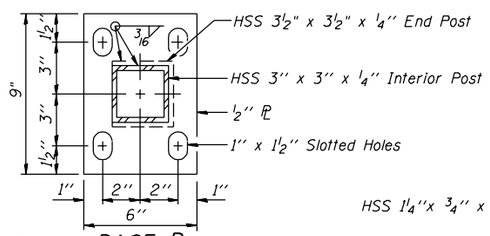


SECTION E-E
(At Expansion Joint)

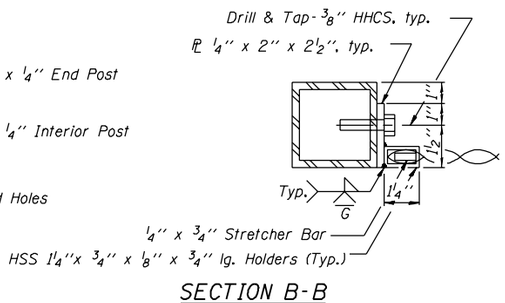


VIEW C-C

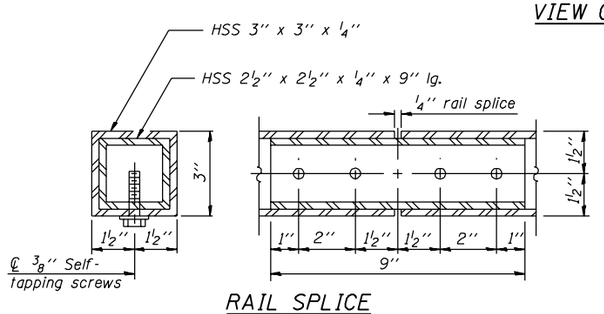
VIEW D-D



BASE PL



SECTION B-B



RAIL SPLICE

BILL OF MATERIAL

Item	Unit	Quantity
Bridge Fence Railing	Foot	

BRIDGE FENCE RAILING
PARAPET MOUNTED

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

*Variable - See Plans (10'-0" Maximum Post Spacing)

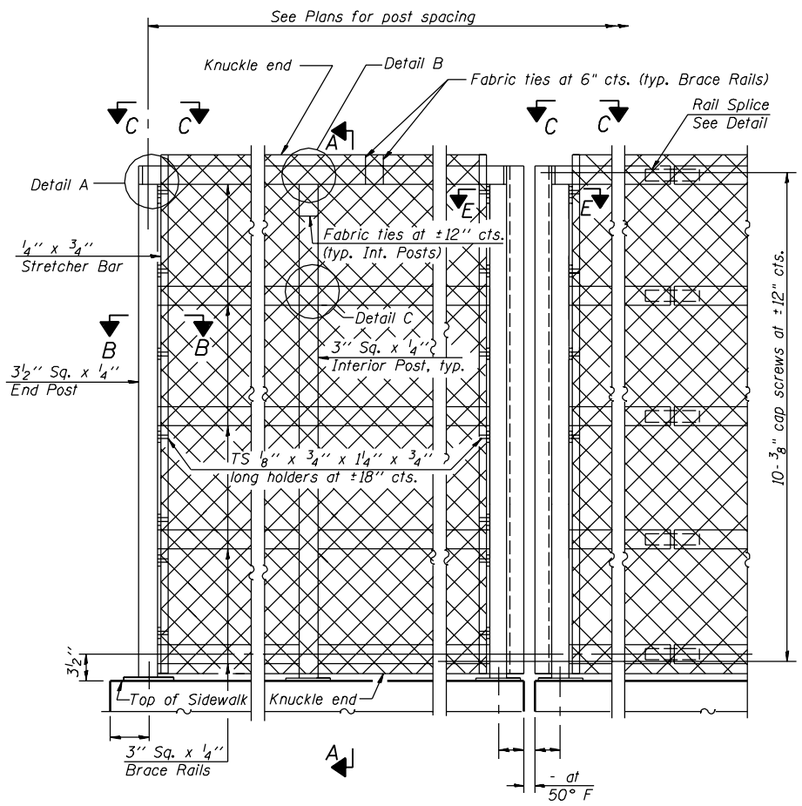
R-32 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

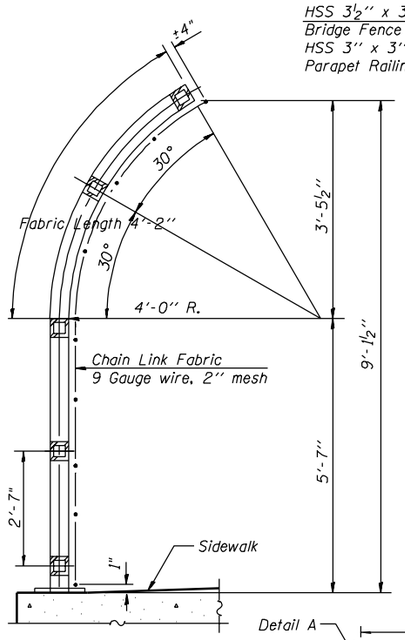
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

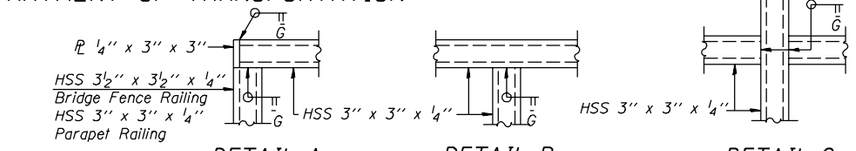
Contract #



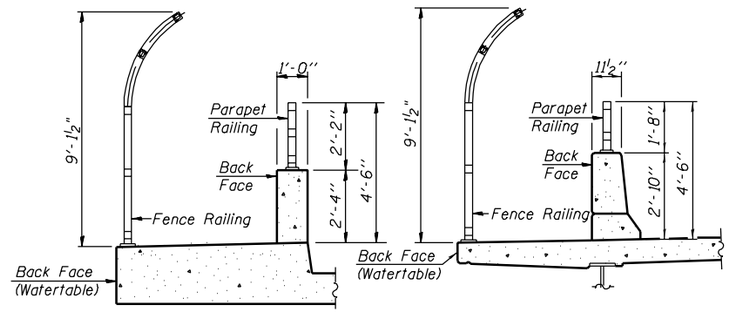
ELEVATION
(Inside Face)



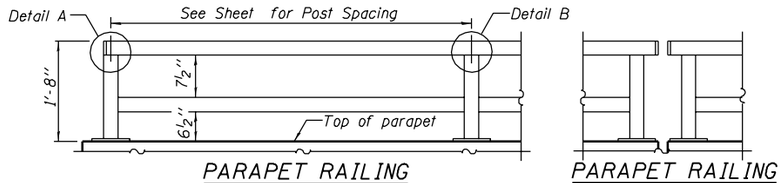
SECTION A-A



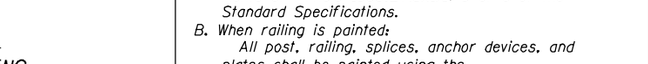
DETAIL A DETAIL B DETAIL C



SECTION THRU SIDEWALK SECTION THRU DECK



PARAPET RAILING ELEVATION
(Inside Face of Two Element Rail)



PARAPET RAILING ELEVATION AT EXPANSION JOINT
(Two Element Rail Shown - Three Element Rail Similar)

PARAPET RAILING ELEVATION
(Inside Face of Three Element Rail)

NOTES

Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the Contract Unit Price per foot for Bridge Fence Railing (Sidewalk) and Parapet Railing.

The 9 gauge fabric ties shall be according to Article 1006.27(d) of the Standard Specifications.

Installation of the chain link fabric shall be according to Section 664 of the Standard Specifications.

Hollow structural sections shall conform to the requirements of ASTM designation A 500, Grade B, structural steel tubing.

All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36.

The chain link fabric shall be placed along pedestrian side as shown on Section A-A.

Stretcher bars shall be used at each end of fabric.

A minimum of one complete turn is required at ends of all fabric ties.

If the option of drilling and epoxy grouting the anchor rods is chosen, the Contractor shall use the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes according to the manufacturer's recommendations and procedures. The capsule or the adhesive cartridge shall be sealed with pre-measured amounts of the adhesive chemical.

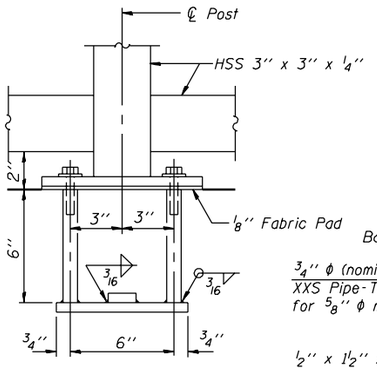
Space reinforcement to miss anchor rods.

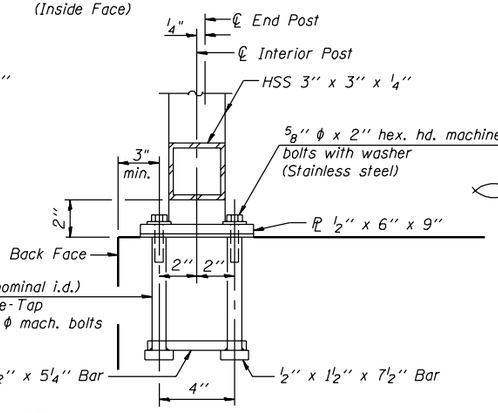
The designer should add the appropriate note as applicable.

A. When railing is galvanized:
All posts, railing, splices, anchor devices, and plates shall be galvanized after shop fabrication according to AASHTO M 111 and ASTM A 385. All bolts, nuts, washers, and anchor rods shall be galvanized according to AASHTO M 232 except stainless steel bolts as noted.
Vent holes for galvanizing shall be placed in the posts and rails at locations that will not allow the accumulation of moisture in the members.
The chain link fabric shall conform to the requirements of Article 1006.27(a)(1)a, b or c of the Standard Specifications.

B. When railing is painted:
All post, railing, splices, anchor devices, and plates shall be painted using the (List the appropriate paint system for Structural Steel).
The chain link fabric shall conform to the requirements of Article 1006.27(a)(1)d of the Standard Spec's.

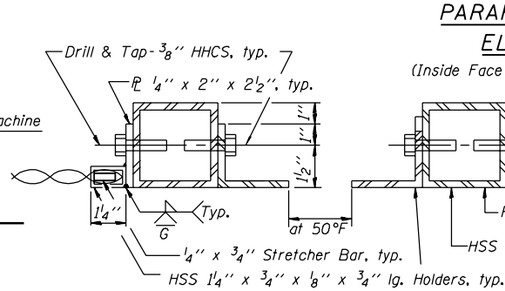
Only one of the above notes would appear on Contract Plans.



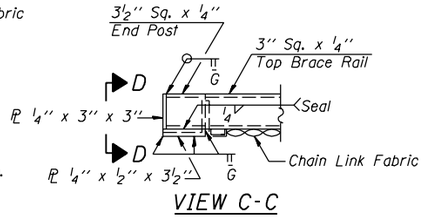


ANCHOR BOLT DETAILS

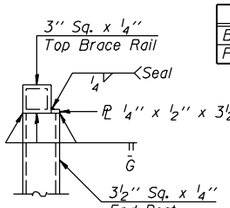
In lieu of the cast-in-place anchor device shown, the Contractor has the option of drilling and epoxy grouting 5/8" ϕ anchor rods. Embedment shall be according to the manufacturer's specifications.



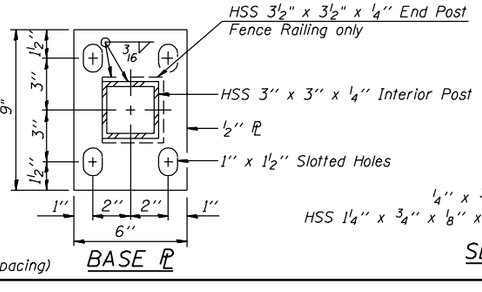
SECTION E-E
(At Expansion Joint)



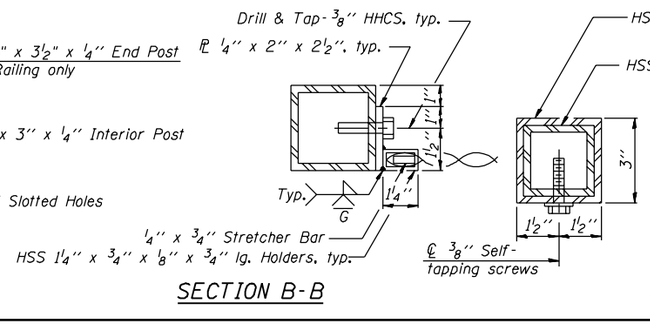
VIEW C-C



VIEW D-D



BASE PL



SECTION B-B RAIL SPLICE

BILL OF MATERIAL

Item	Unit	Quantity
Bridge Fence Railing (Sidewalk)	Foot	
Parapet Railing	Foot	

BRIDGE FENCE RAILING SIDEWALK MOUNTED

DESIGNED	-
CHECKED	-
DRAWN	-
CHECKED	-

- 200

EXAMINED

PASSED

ENGINEER OF BRIDGE DESIGN

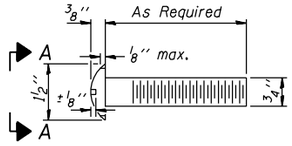
ENGINEER OF BRIDGES AND STRUCTURES

R-33 10-22-04 (10'-0" Maximum Post Spacing)

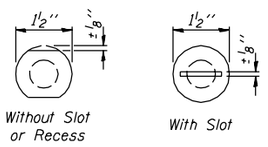
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

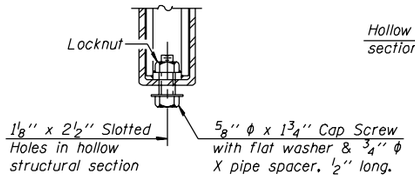
SHEET NO. -
- SHEETS



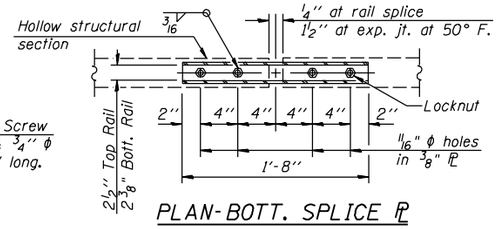
DETAIL OF $\frac{3}{4}$" ϕ ROUND HEAD BOLT



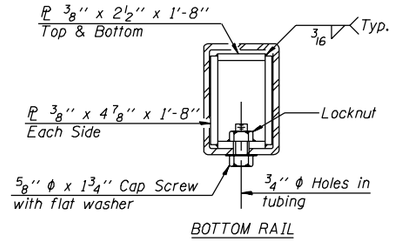
VIEW A-A

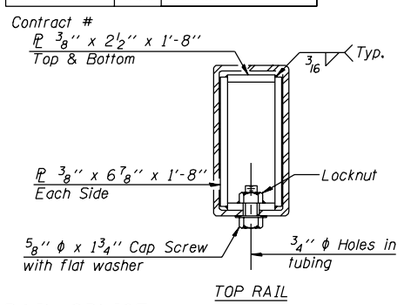


RAIL SPLICE CONNECTION AT EXPANSION JT.

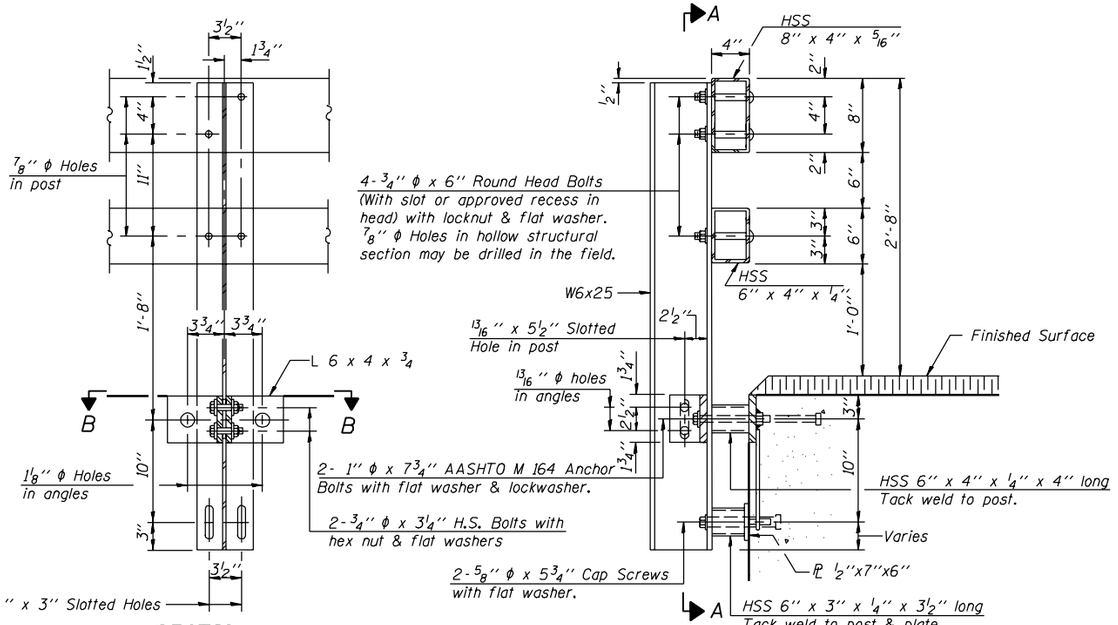


PLAN-BOTT. SPLICE PL TYPICAL



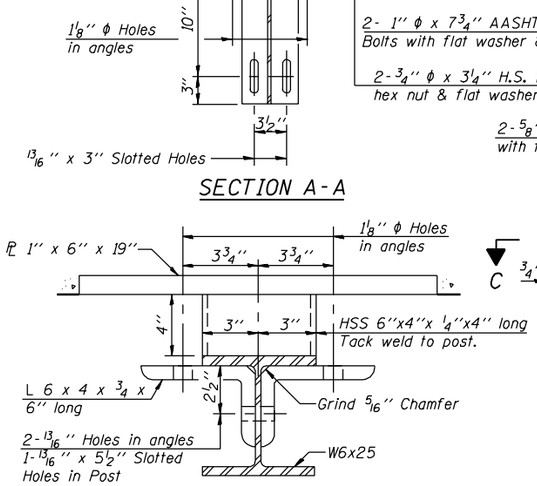


SECTIONS AT RAIL SPLICE

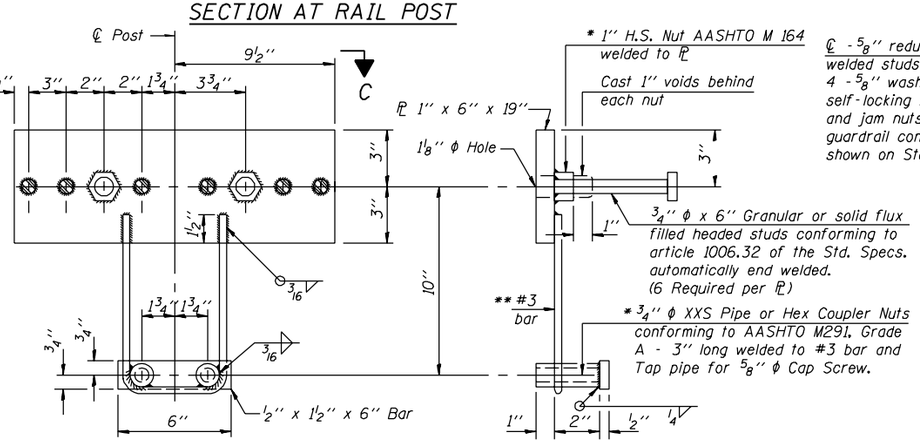


SECTION A-A

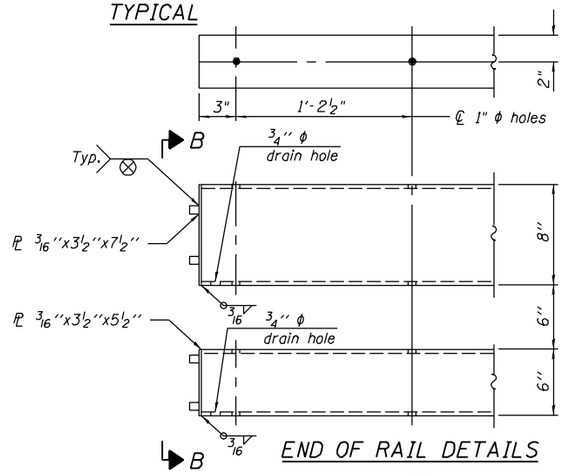
SECTION AT RAIL POST



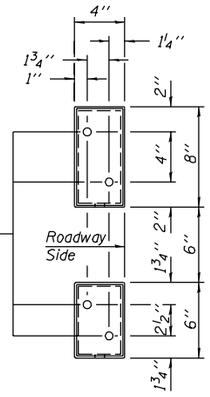
SECTION B-B



ANCHOR DEVICE

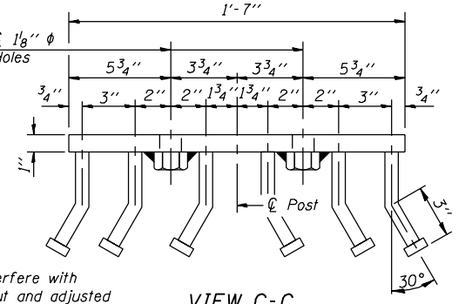


END OF RAIL DETAILS



VIEW B-B

℄ - 5/8" reduced base welded studs. Provide 4 - 5/8" washers and self-locking nuts or nuts and jam nuts for guardrail connection shown on Std. 631032



VIEW C-C

NOTES

Hollow structural sections shall conform to the requirements of ASTM designation A 500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft-lbs at 0° F.

All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36 except posts and angles shall conform to AASHTO M 270, Grade 50.

Bolts, cap screws, and nuts shall conform to the requirements of ASTM designation A 307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M 164.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized according to AASHTO M 232.

All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication according to AASHTO M 111 and ASTM A 385. Galvanized rail shall not be painted.

Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for Steel Bridge Rail, Type SM.

All field drilled holes shall be coated with an approved zinc rich paint before erection.

For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Bridge Rail, Type SM.

The 1/2" x 7" x 6" plates that come in contact with concrete shall receive two coats of asphalt paint conforming to Section 1060.07 Type II or place 1/8" fabric bearing pads between the plates and concrete.

The 3/4" ϕ high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04(f)(2) of the Standard Specifications. The 1" ϕ high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The 5/8" ϕ cap screws in bottom of posts shall be tightened to a snug fit only.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Bridge Rail, Type SM	Foot	

TYPE SM
STEEL BRIDGE RAIL SIDE MOUNTED

DESIGNED	-
CHECKED	-
DRAWN	-
CHECKED	-

\- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

R-34 10-22-04 (6'-3" Maximum Post Spacing)

* Threaded areas shall be plugged or blocked off during casting of beam. Galvanized after fabrication.

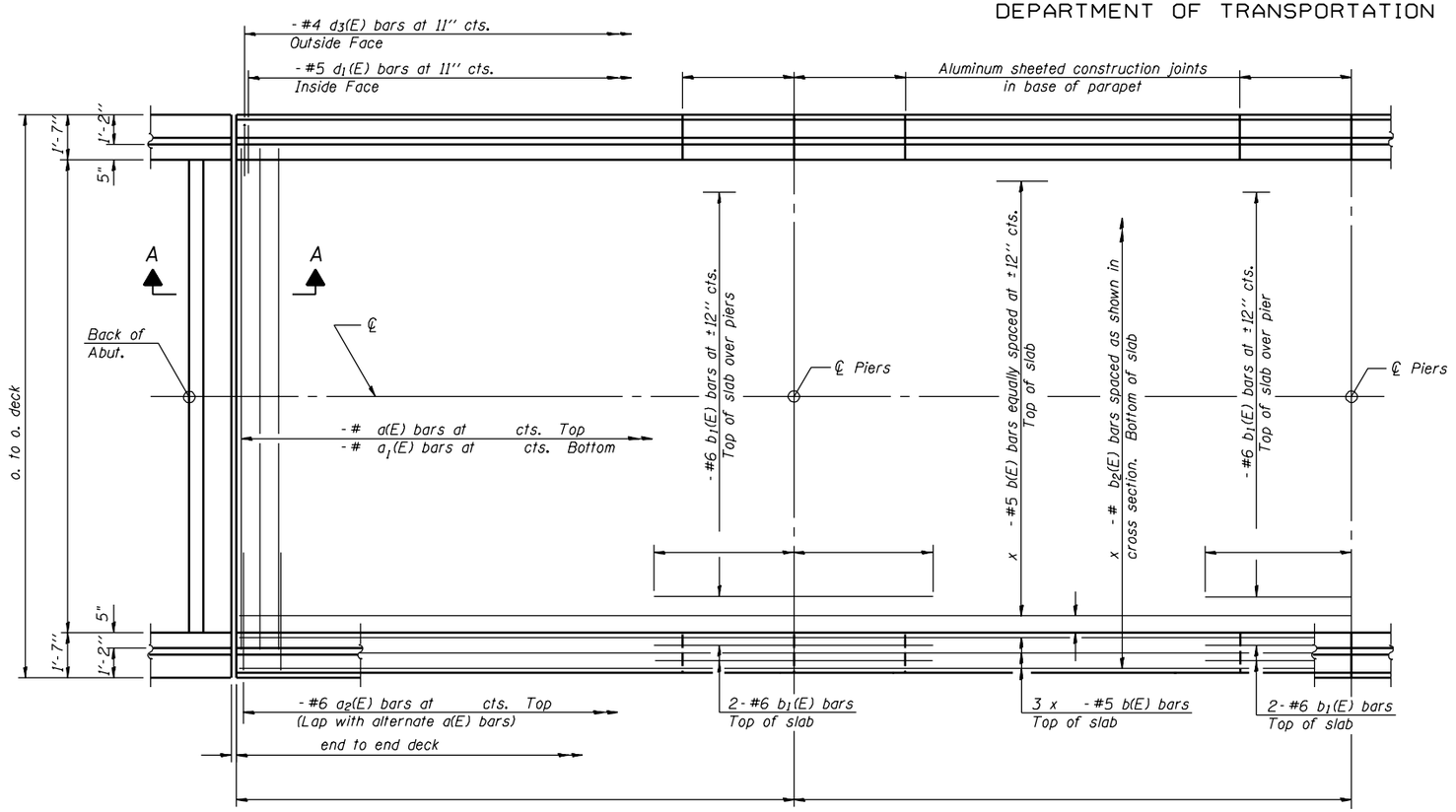
** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

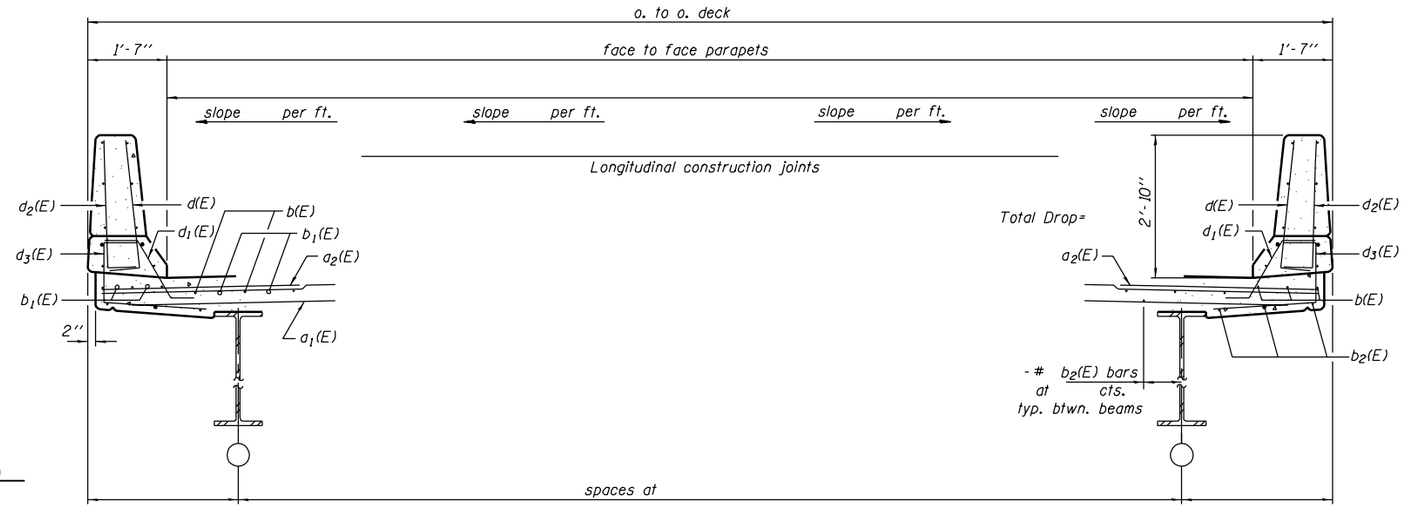
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #



HALF PLAN



NEAR PIER NEAR MIDSPAN

CROSS SECTION
(Looking)

Notes:
See Sheet of for superstructure details and Bill of Material.
Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 20 x 3 - #5 etc. indicates 20 lines of bars with 3 lengths per line.
See Sheet of for parapet reinforcement.

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

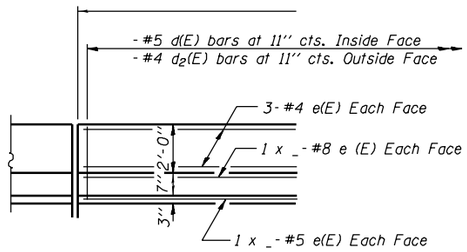
S-1-0 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

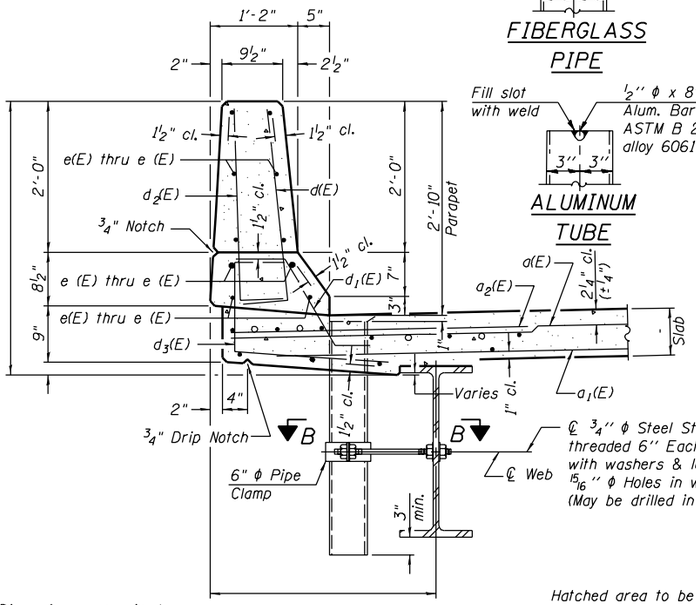
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #

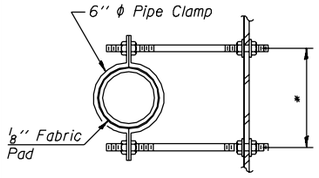


INSIDE ELEVATION OF PARAPET

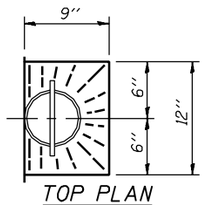


SECTION THRU PARAPET

* Dimension as required by Pipe Clamp

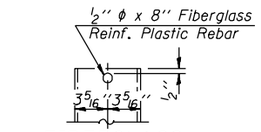


SECTION B-B



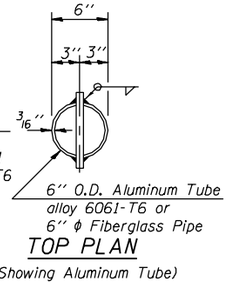
TOP PLAN

½'' ϕ x 8'' Fiberglass Reinf. Plastic Rebar



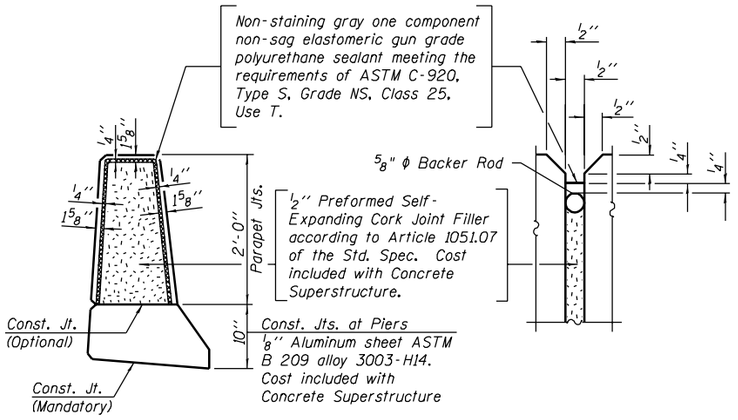
FIBERGLASS PIPE

ALUMINUM TUBE



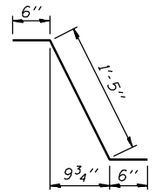
6'' O.D. Aluminum Tube alloy 6061-T6 or 6'' ϕ Fiberglass Pipe

TOP PLAN (Showing Aluminum Tube)

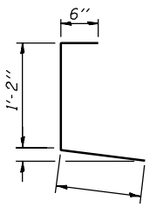


PARAPET JOINT DETAILS

BARS d(E) & d2(E)



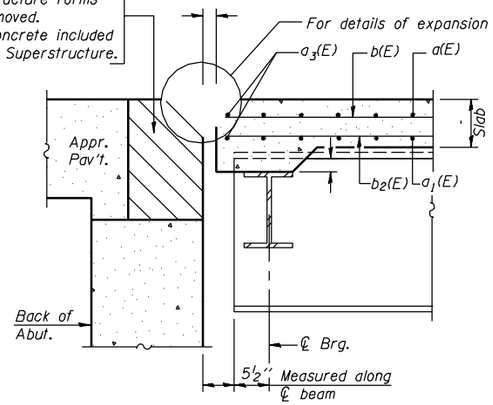
BAR d1(E)



BAR d3(E)

Notes:
The exterior surfaces of the floor drains shall be painted with the finish coat as specified in the special provisions for Cleaning and Painting New Metal Structures. The exterior surfaces of the drains shall be cleaned according to Steel Structures Painting Council's Spec. SSPC-SP1 prior to painting.
Fiberglass pipe shall conform to ASTM D 2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.

Hatched area to be poured after superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.



SECTION A-A

SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)				
a1(E)				
a2(E)		#6	4'-6''	
b(E)		#5		
b1(E)		#6		
b2(E)				
b3(E)				
b4(E)				
d(E)		#5	3'-0''	
d1(E)		#5	2'-5''	
d2(E)		#4	3'-0''	
d3(E)		#4		
e(E)		#4		
e1(E)		#4		
e2(E)				
e3(E)				
Reinforcement Bars, Epoxy Coated		Pound		
Concrete Superstructure		Cu. Yds.		

Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 1 x - #5 etc. indicates 1 line of bars with lengths per line.

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

S-1-D

10-22-04

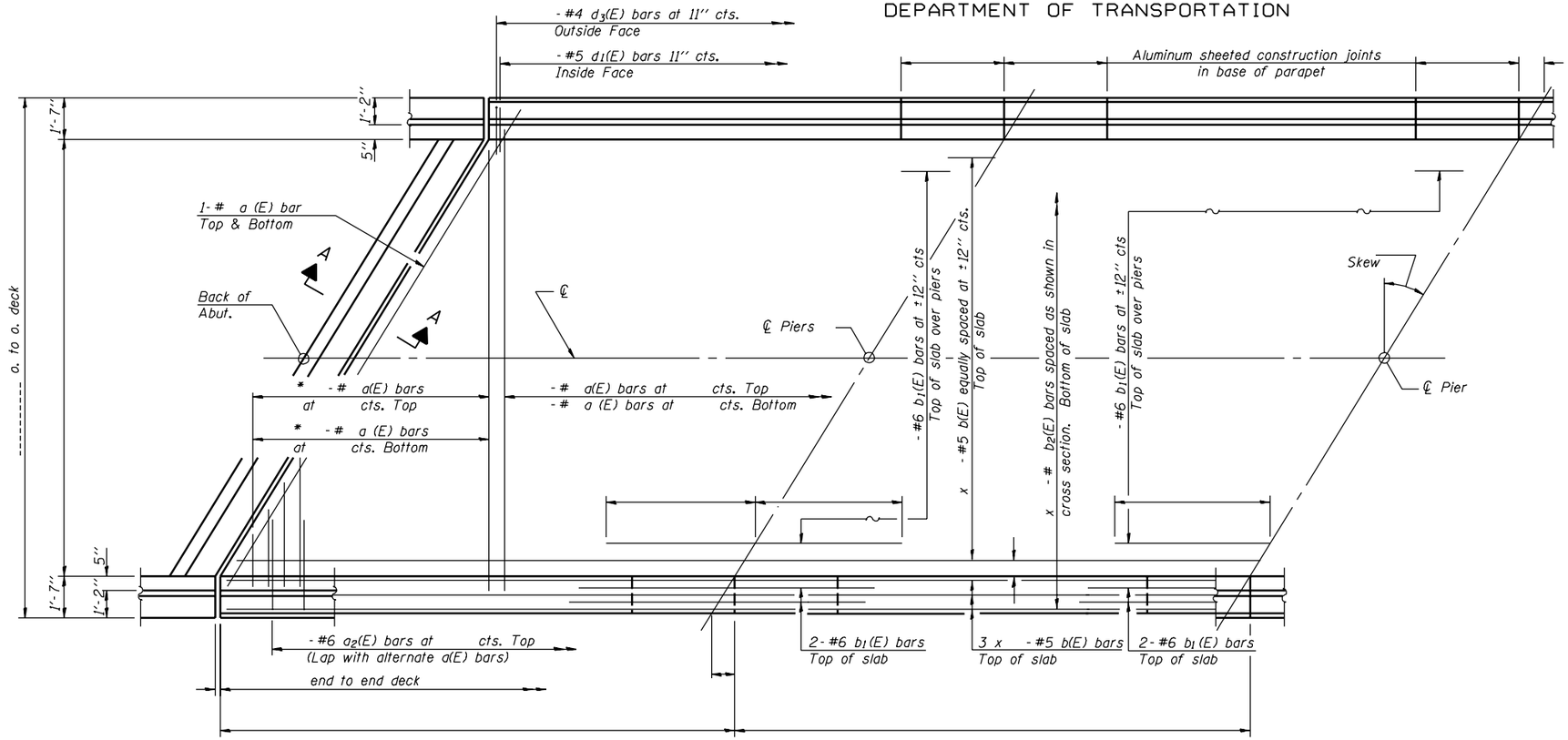
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-				
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -

- SHEETS

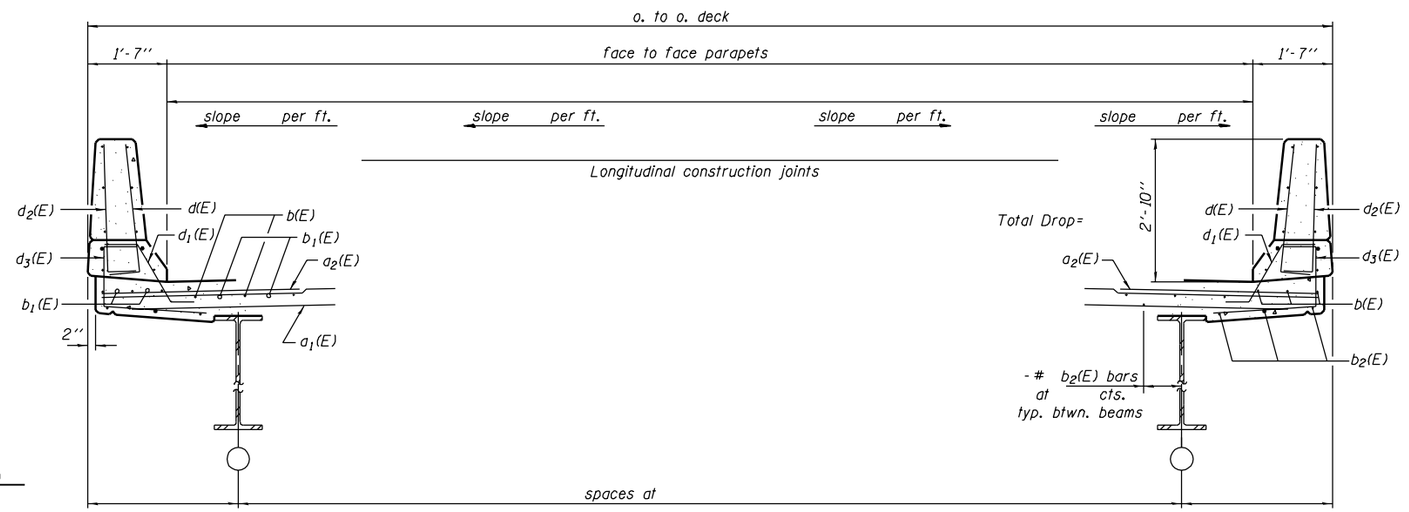
Contract #

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



* Order a(E) & a_1(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.

HALF PLAN



NEAR PIER NEAR MIDSPAN

CROSS SECTION

(Looking)

Notes:
See Sheet of for superstructure details and Bill of Material.
Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 20 x 3- #5 etc. indicates 20 lines of bars with 3 lengths per line.
See Sheet of for parapet reinforcement.

DESIGNED -	- 200
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	

ENGINEER OF BRIDGE DESIGN

ENGINEER OF BRIDGES AND STRUCTURES

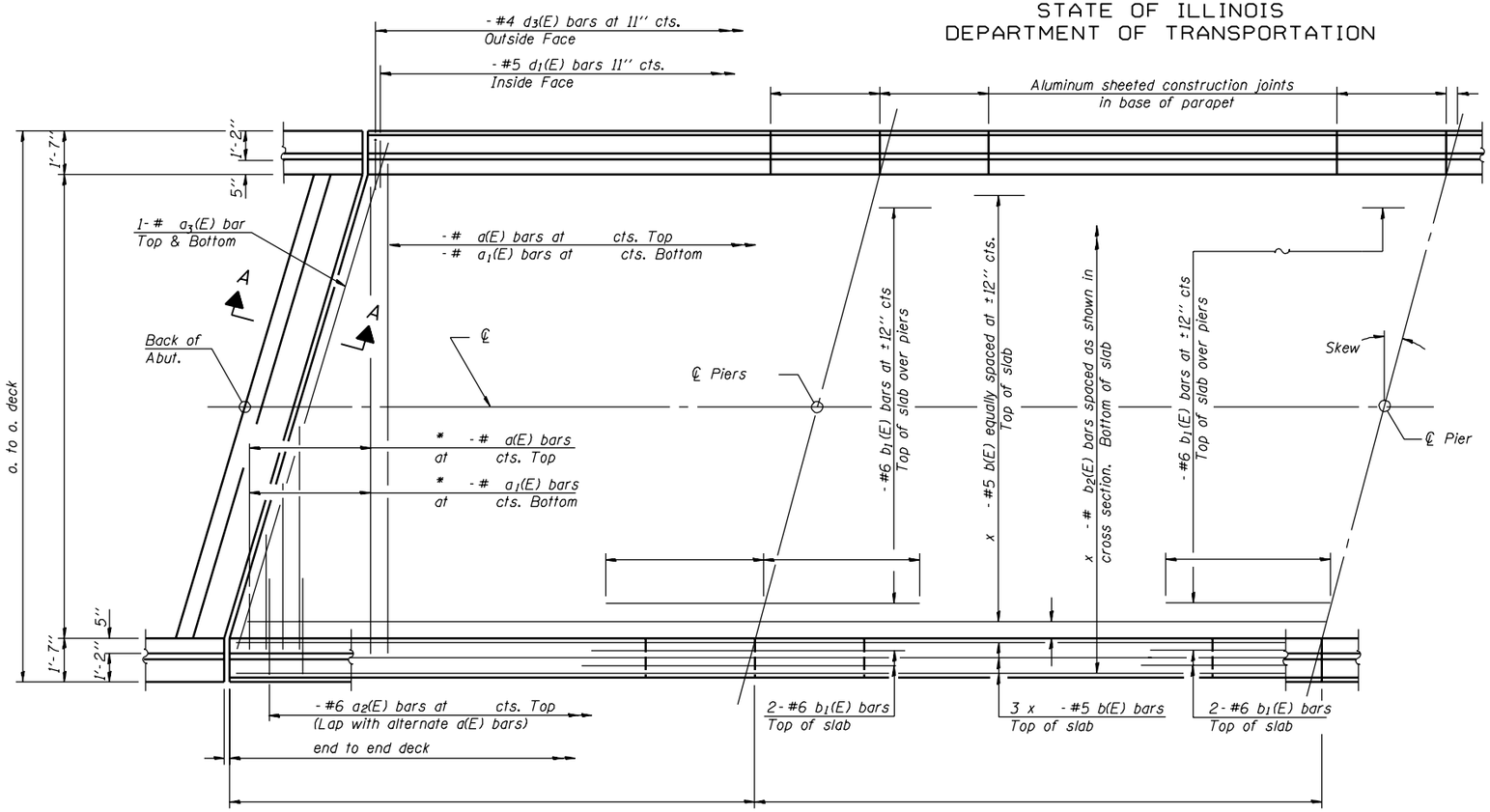
S-1-L(>15°) 10-22-04

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

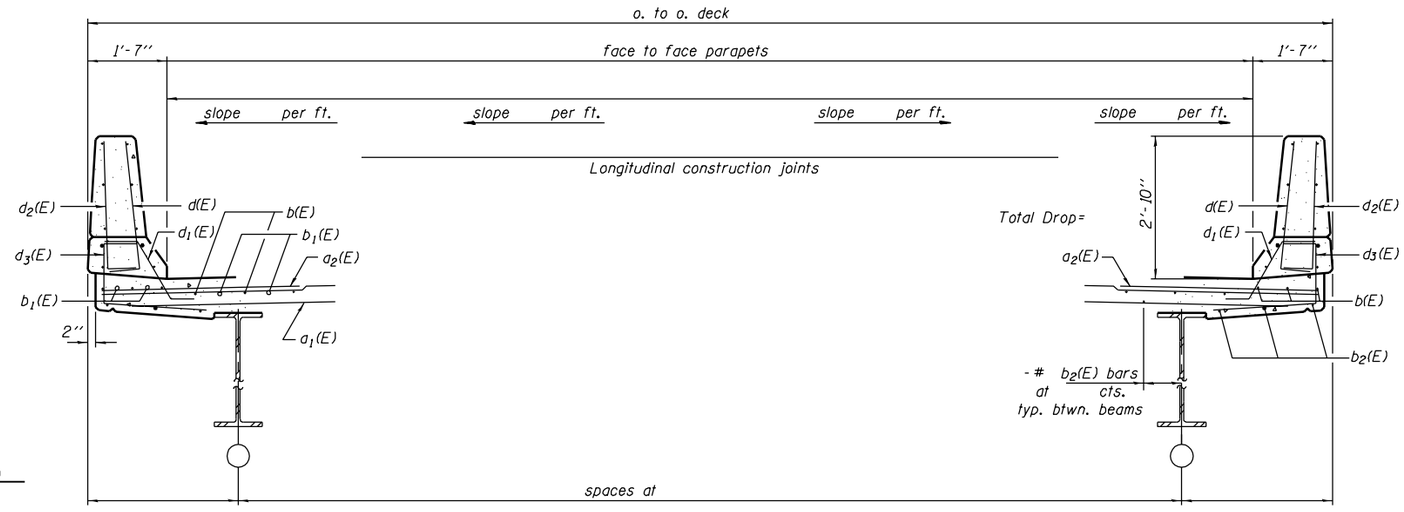
Contract #

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



* Order a(E) & a_1(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.

HALF PLAN



NEAR PIER NEAR MIDSPAN

CROSS SECTION

(Looking)

Notes:
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DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

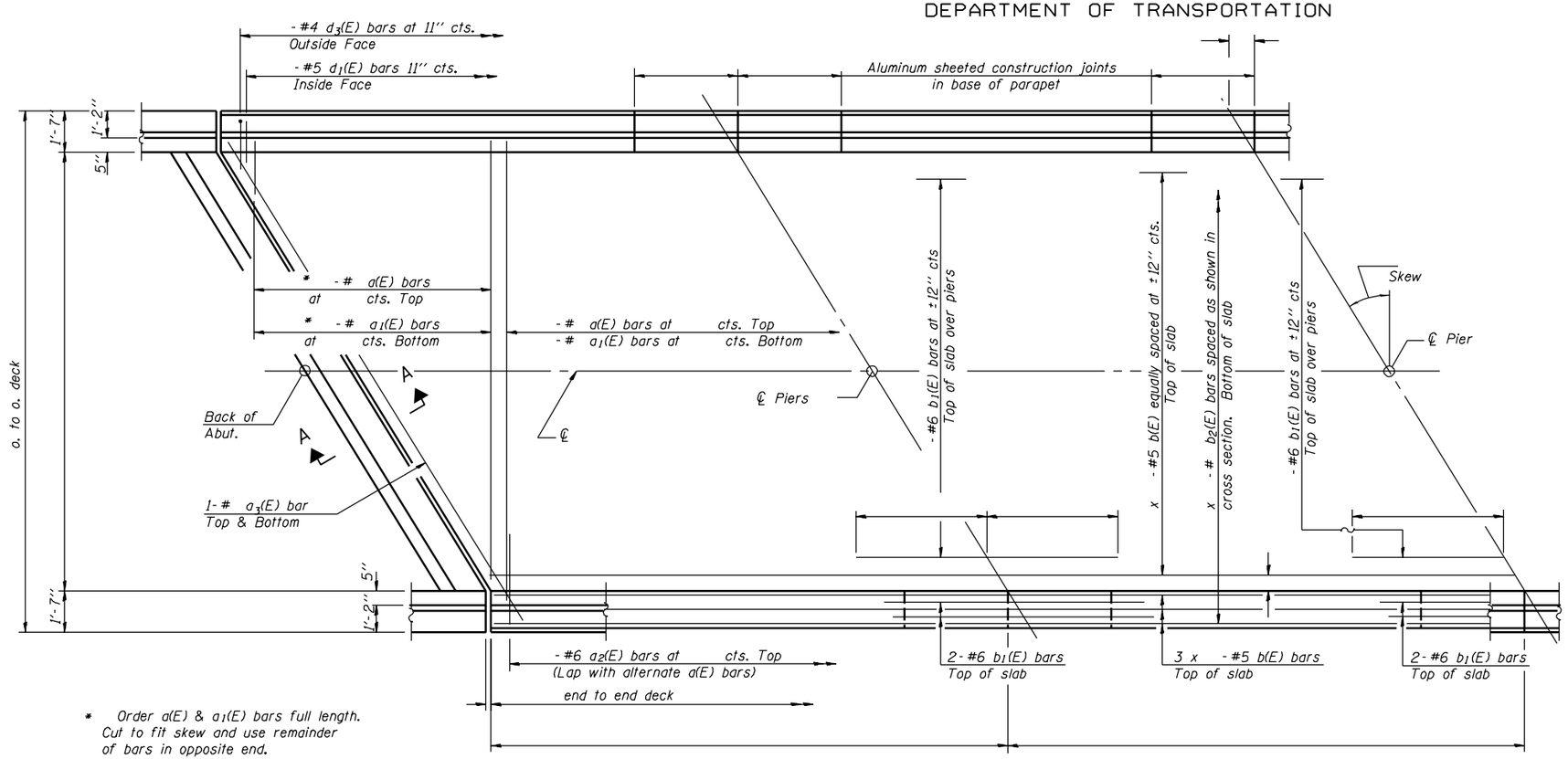
S-1-L(<15°) 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

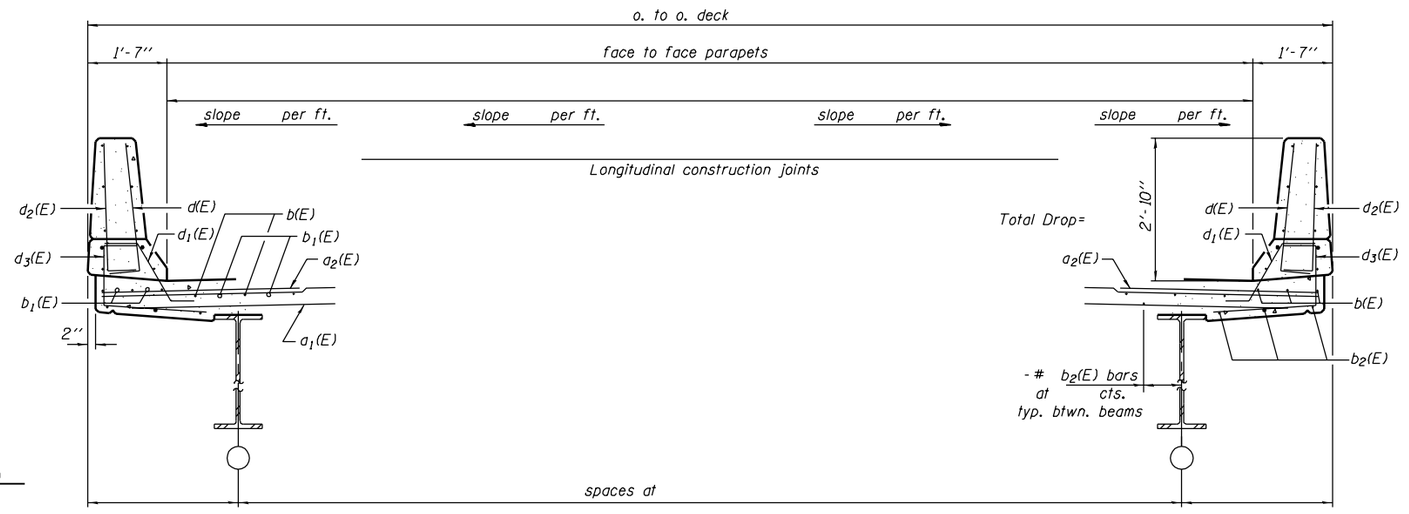
SHEET NO. -
- SHEETS

Contract #



* Order a(E) & a_1(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.

HALF PLAN



NEAR PIER NEAR MIDSPAN

CROSS SECTION
(Looking)

Notes:
See Sheet of for superstructure details and Bill of Material.
Reinforcement bars designated (E) shall be epoxy coated.
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See Sheet of for parapet reinforcement.

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200
EXAMINED
ENGINEER OF BRIDGE DESIGN
PASSED
ENGINEER OF BRIDGES AND STRUCTURES

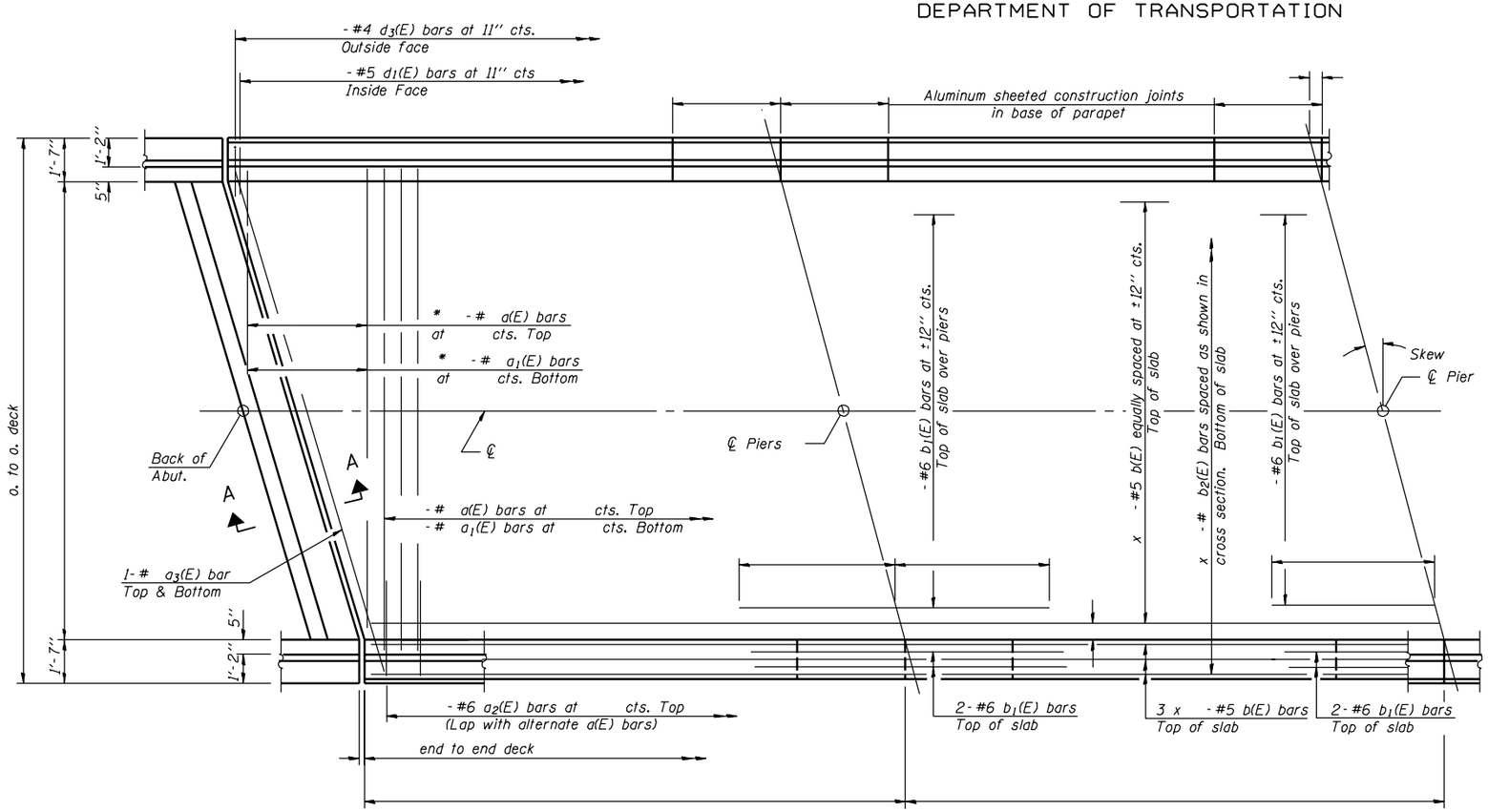
S-1-R(>15°) 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

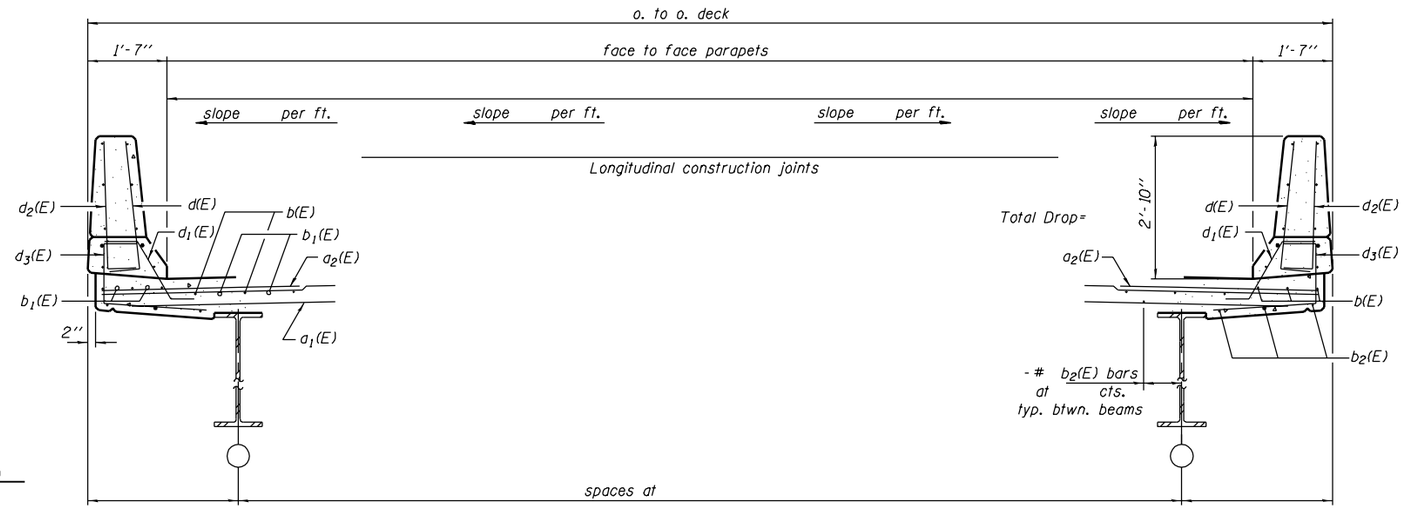
SHEET NO. -
- SHEETS

Contract #



HALF PLAN

* Order d(E) & a_1(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.



NEAR PIER NEAR MIDSPAN

CROSS SECTION

(Looking)

Notes:
See Sheet of for superstructure details and Bill of Material.
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Bars indicated thus 20 x 3- #5 etc. indicates 20 lines of bars with 3 lengths per line.
See Sheet of for parapet reinforcement.

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200
EXAMINED
ENGINEER OF BRIDGE DESIGN
PASSED
ENGINEER OF BRIDGES AND STRUCTURES

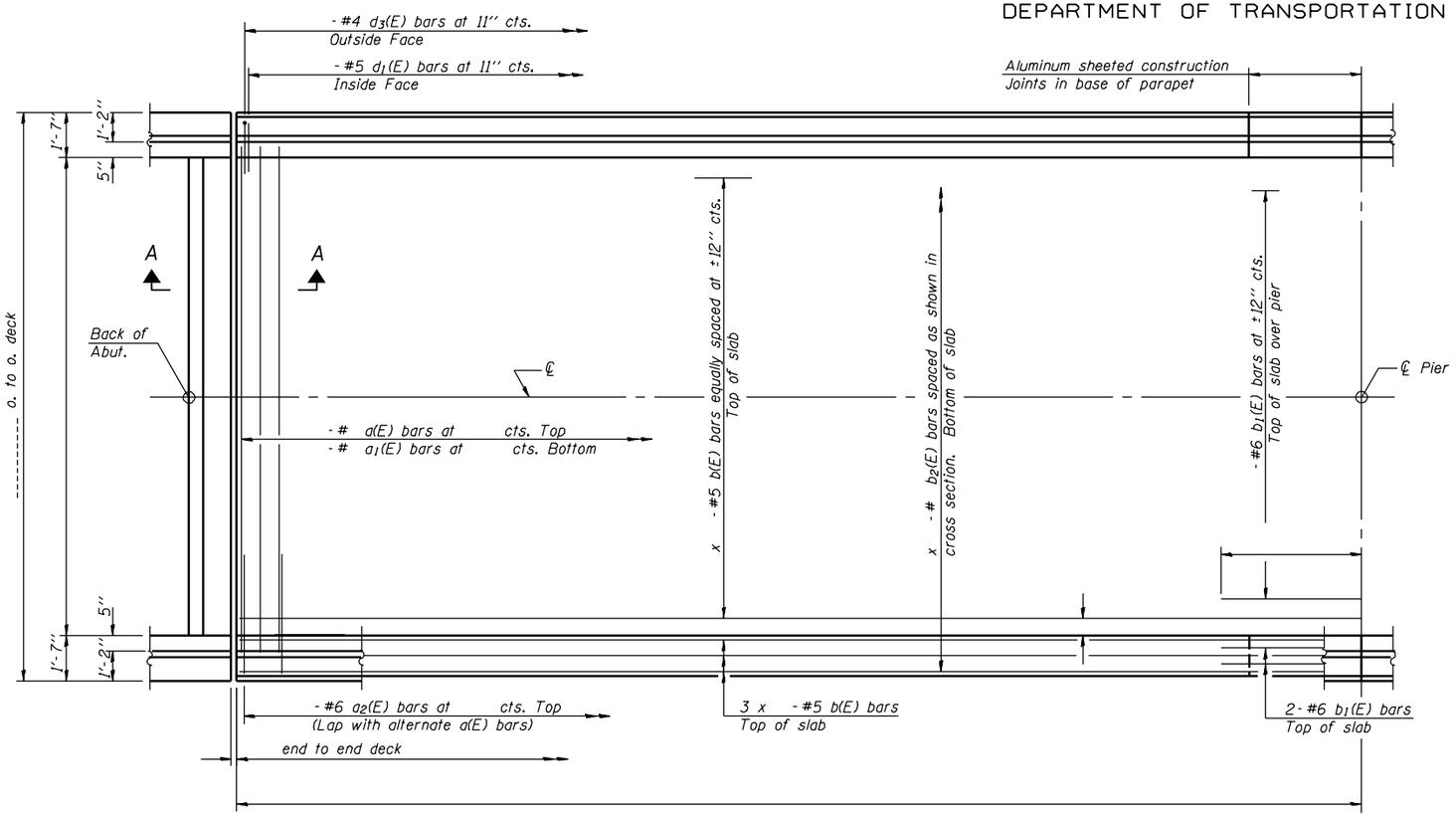
S-1-R(<15°) 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

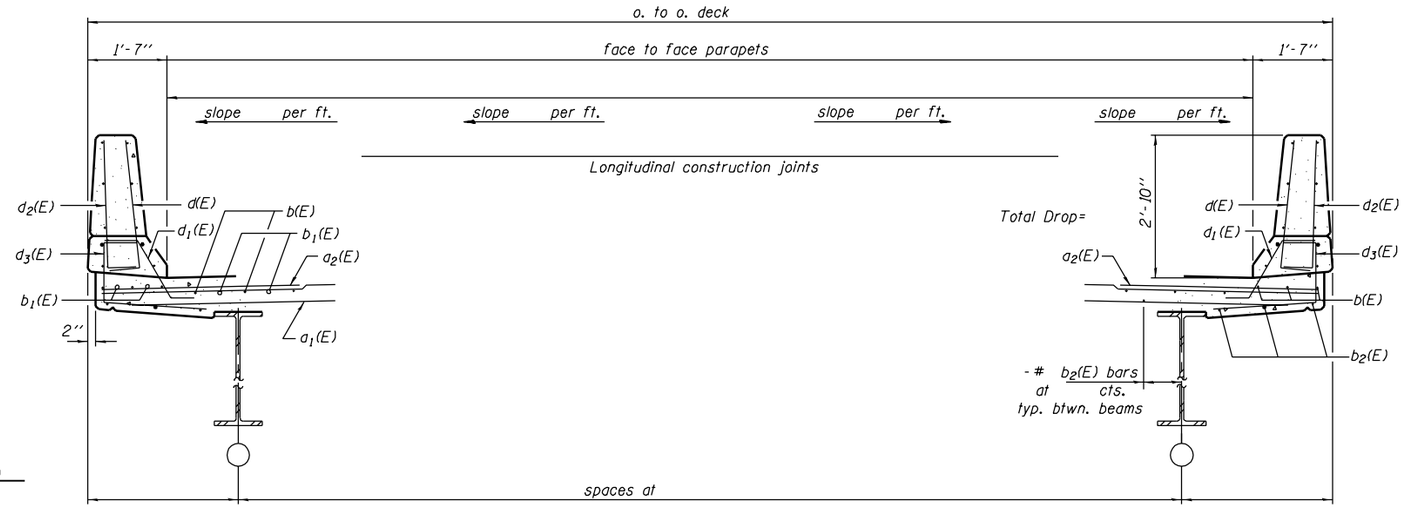
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #



HALF PLAN



NEAR PIER NEAR MIDSPAN

CROSS SECTION

(Looking)

Notes:
See Sheet of for superstructure details and Bill of Material.
Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 20 x 3- #5 etc. indicates 20 lines of bars with 3 lengths per line.
See Sheet of for parapet reinforcement.

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

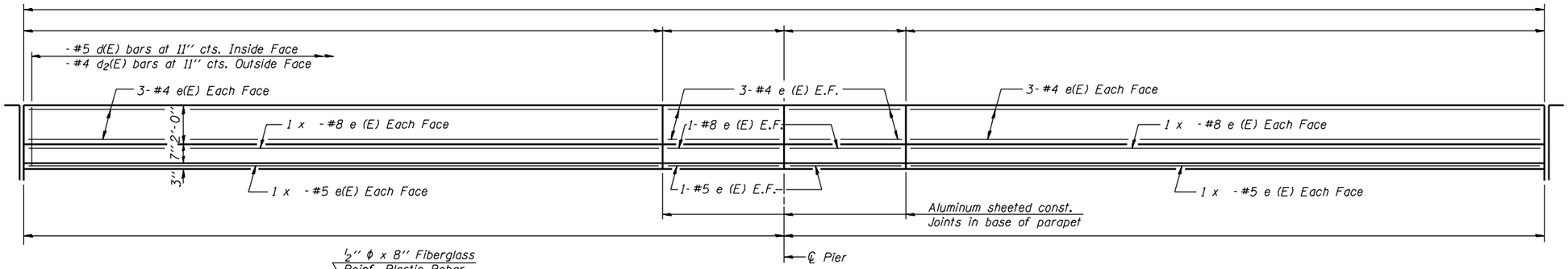
S-2-0 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

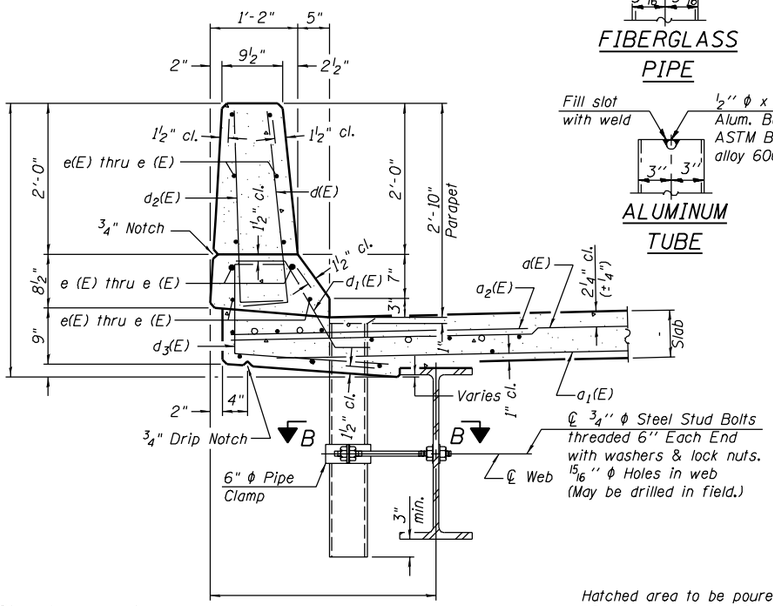
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #

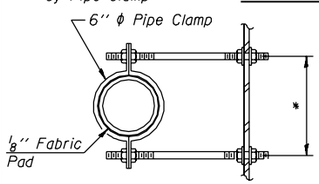


INSIDE ELEVATION OF PARAPET

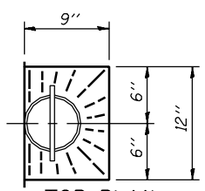


SECTION THRU PARAPET

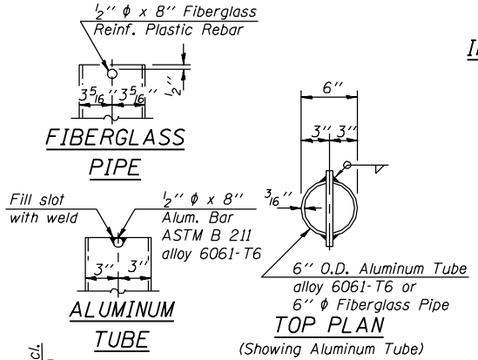
* Dimension as required by Pipe Clamp

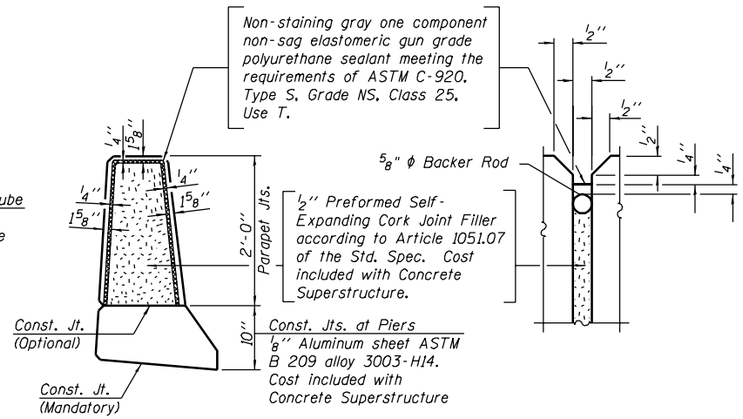


SECTION B-B

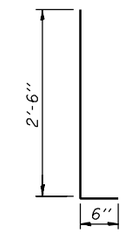


TOP PLAN

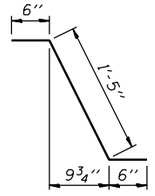




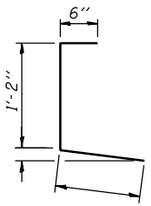
PARAPET JOINT DETAILS



BARS d(E) & d2(E)



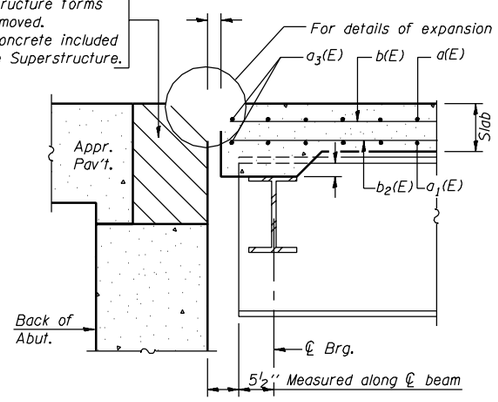
BAR d1(E)



BAR d3(E)

Notes:
The exterior surfaces of the floor drains shall be painted with the finish coat as specified in the special provisions for Cleaning and Painting New Metal Structures. The exterior surfaces of the drains shall be cleaned according to Steel Structures Painting Council's Spec. SSPC-SP1 prior to painting.
Fiberglass pipe shall conform to ASTM D 2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.

Hatched area to be poured after superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.



SECTION A-A

SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)				
a1(E)				
a2(E)		#6	4'-6"	
b(E)		#5		
b1(E)		#6		
b2(E)				
b3(E)				
b4(E)				
d(E)		#5	3'-0"	
d1(E)		#5	2'-5"	
d2(E)		#4	3'-0"	
d3(E)		#4		
e(E)		#4		
e1(E)		#4		
e2(E)				
e3(E)				
Reinforcement Bars, Epoxy Coated		Pound		
Concrete Superstructure		Cu. Yds.		

Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 1 x - #5 etc. indicates 1 line of bars with lengths per line.

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED
ENGINEER OF BRIDGE DESIGN

PASSED
ENGINEER OF BRIDGES AND STRUCTURES

S-2-D 10-22-04

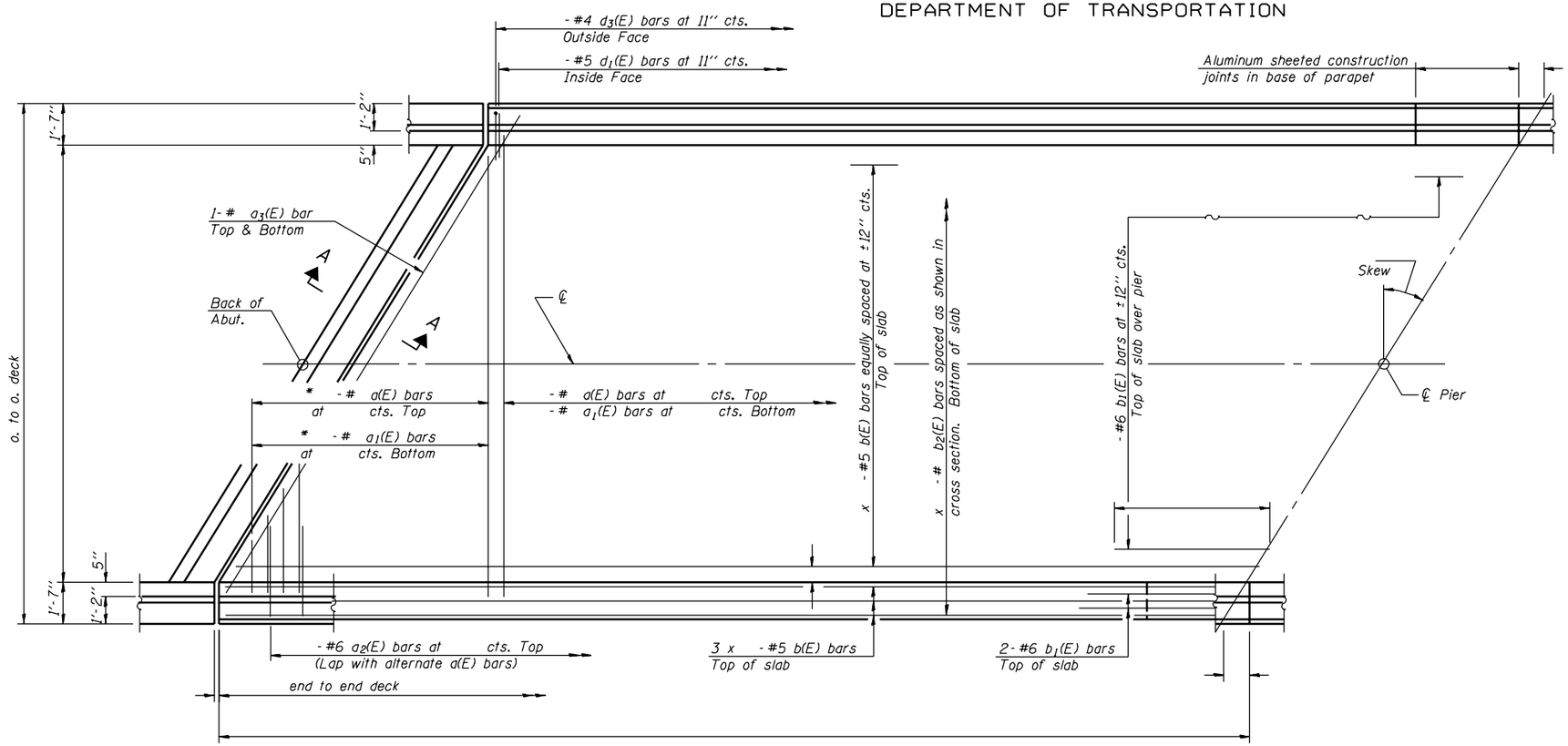
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -

- SHEETS

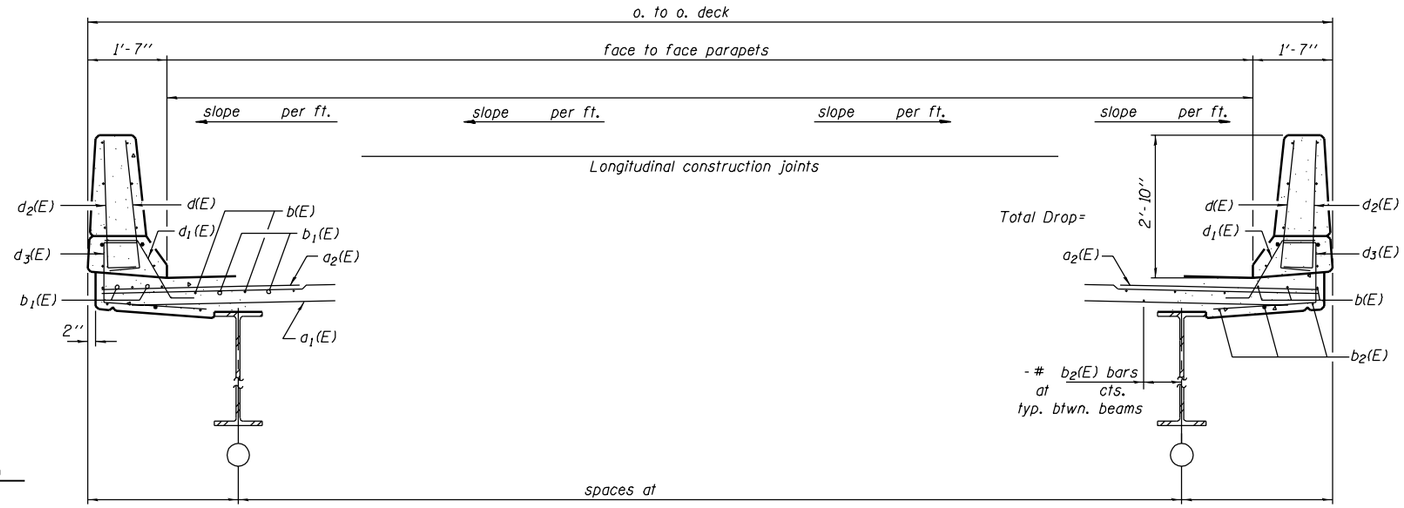
Contract #

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



* Order d(E) & a_1(E) bars full length.
Cut to fit skew and use remainder
of bars in opposite end.

HALF PLAN



NEAR PIER NEAR MIDSPAN

CROSS SECTION

(Looking)

Notes:
See Sheet of for superstructure details and Bill of Material.
Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 20 x 3- #5 etc. indicates 20 lines of bars with 3 lengths per line.
See Sheet of for parapet reinforcement.

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

S-2-L(>30°) 10-22-04

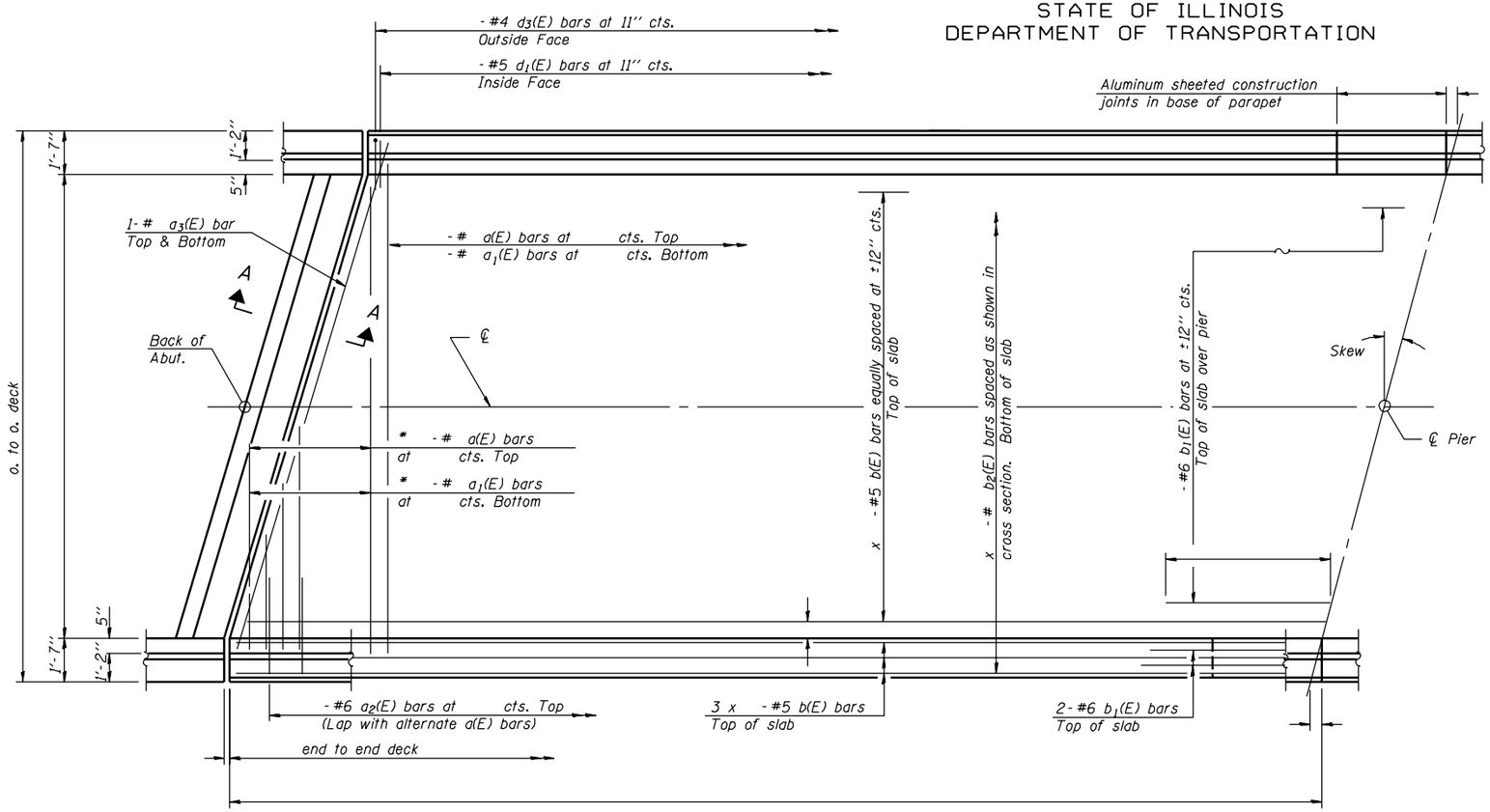
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -

- SHEETS

Contract #



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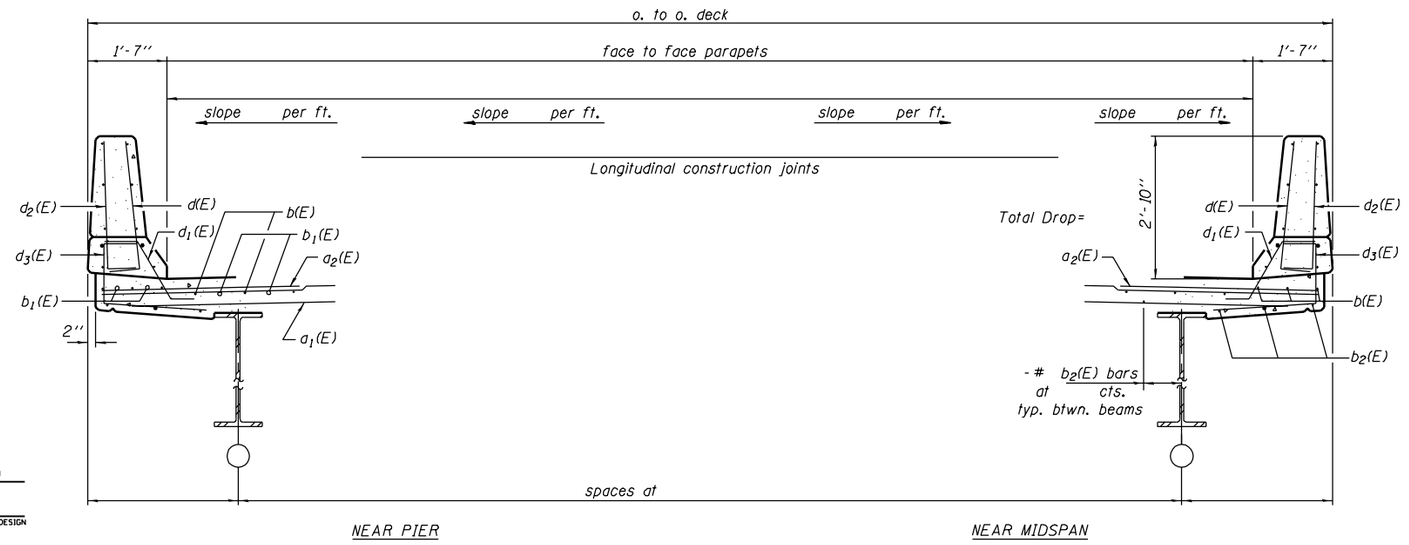
HALF PLAN



NEAR PIER NEAR MIDSPAN

CROSS SECTION

(Looking)

Notes:
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Bars indicated thus 20 x 3- #5 etc. indicates 20 lines of bars with 3 lengths per line.
See Sheet of for parapet reinforcement.

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

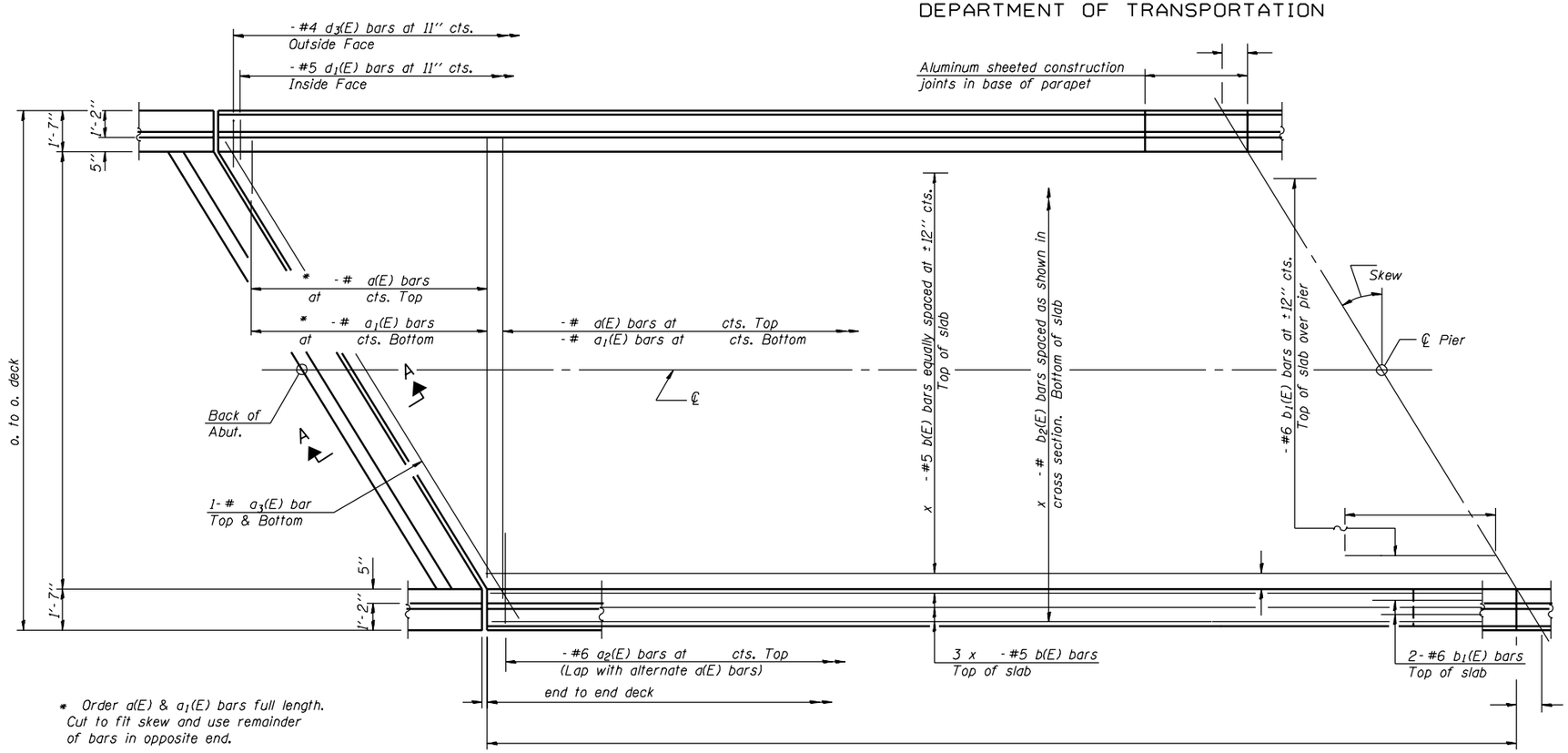
S-2-L(<30°) 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #



* Order d(E) & a_1(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.

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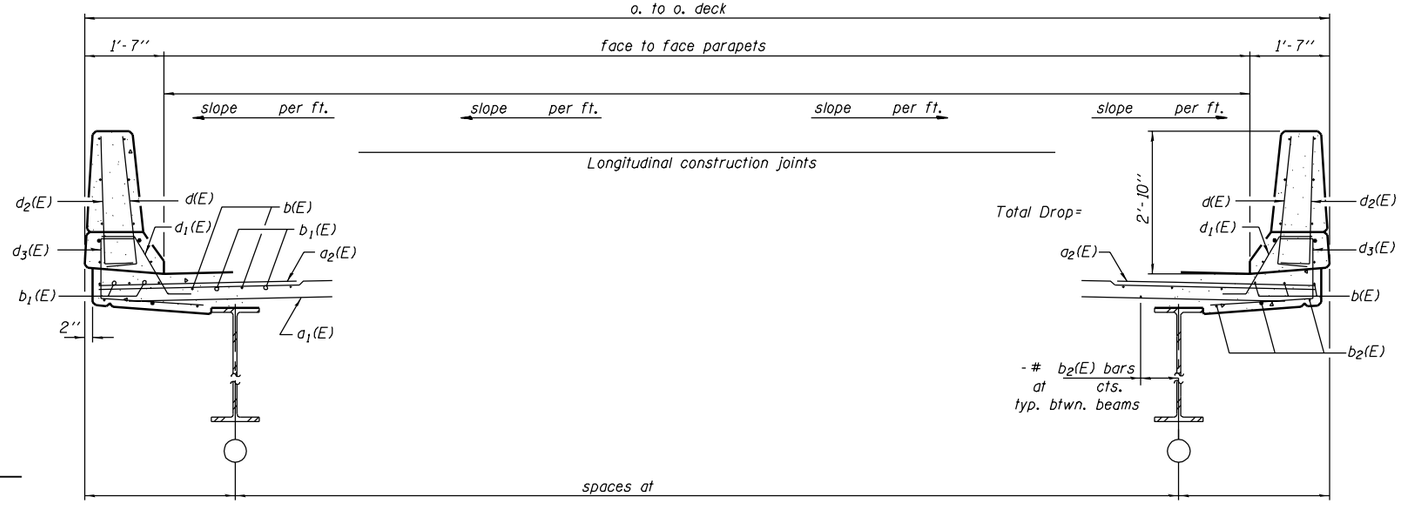

NEAR PIER NEAR MIDSPAN

CROSS SECTION

(Looking)

Notes:
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DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

S-2-R(>30°) 10-22-04

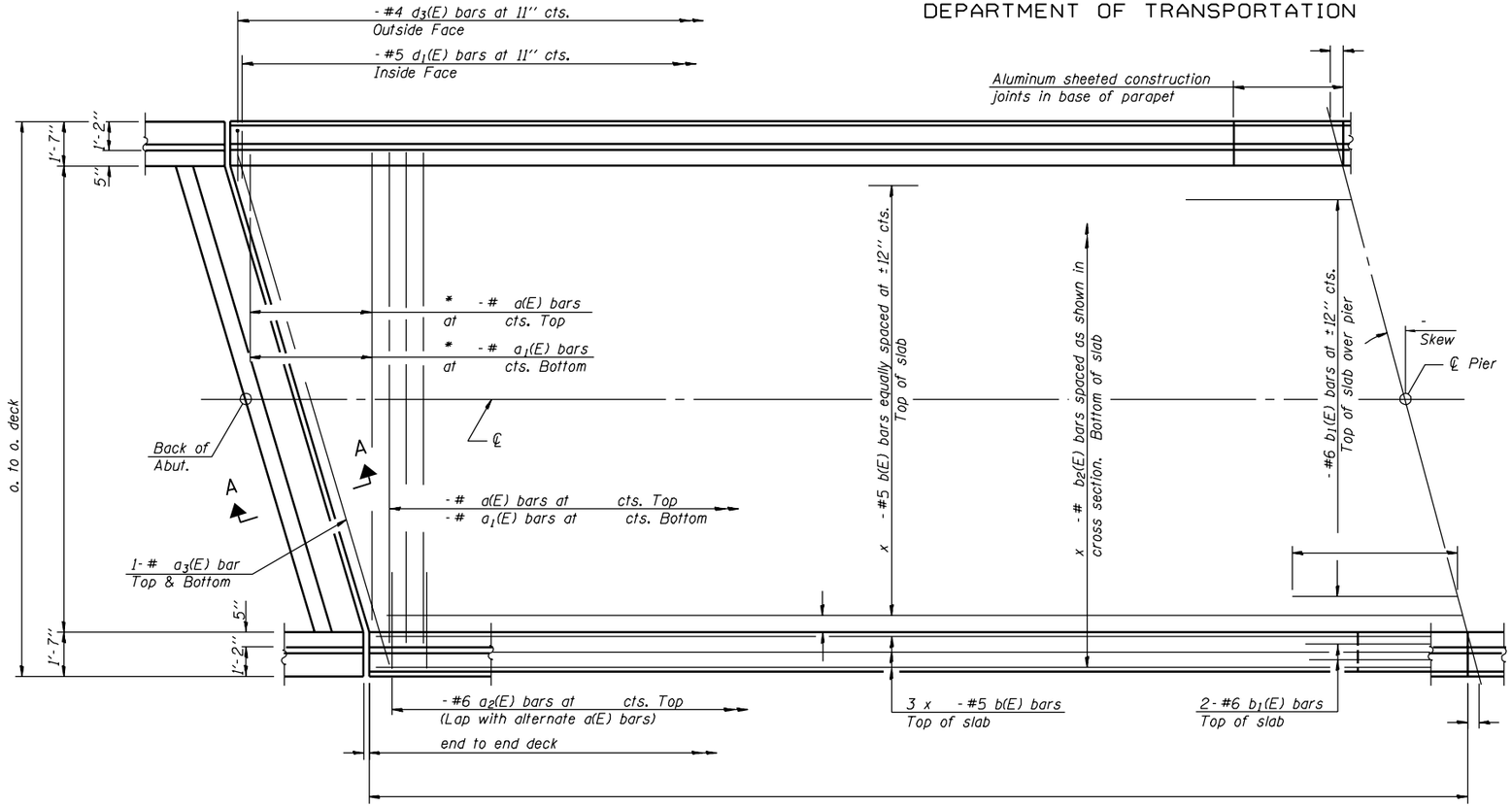
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -

- SHEETS

Contract #

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



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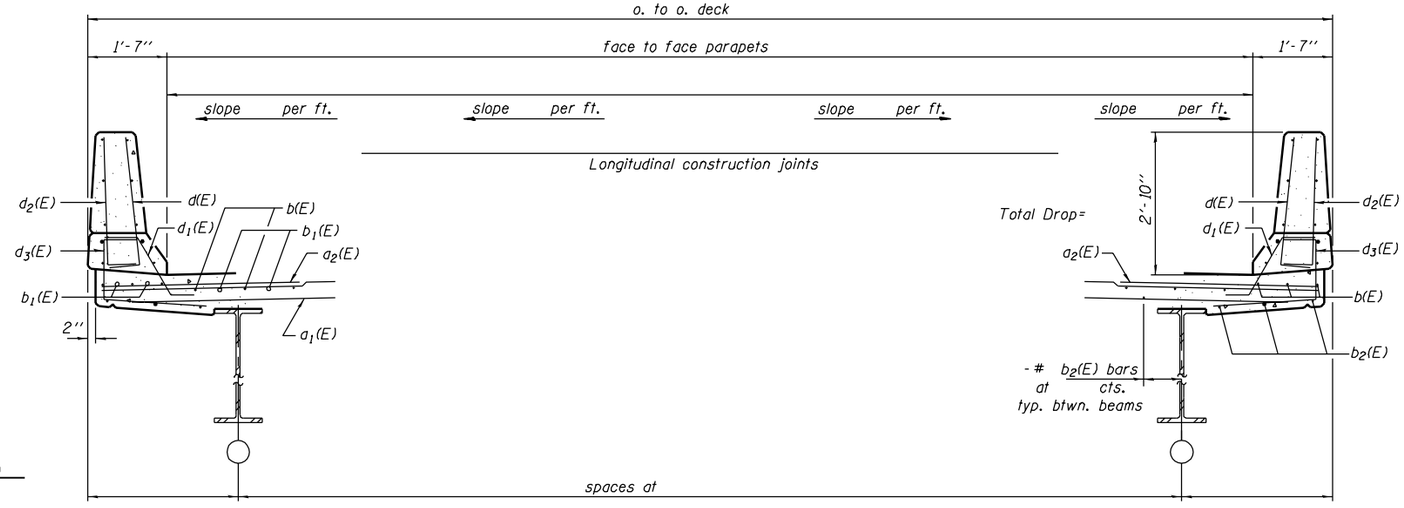
HALF PLAN



NEAR PIER NEAR MIDSPAN

CROSS SECTION

(Looking)

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DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

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EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

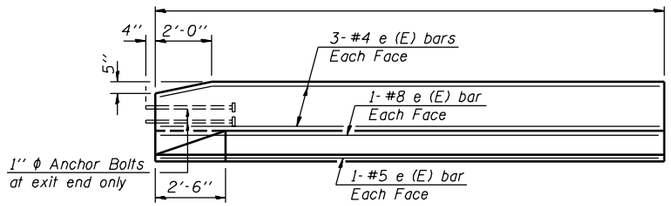
ENGINEER OF BRIDGES AND STRUCTURES

S-2-R(<30°) 10-22-04

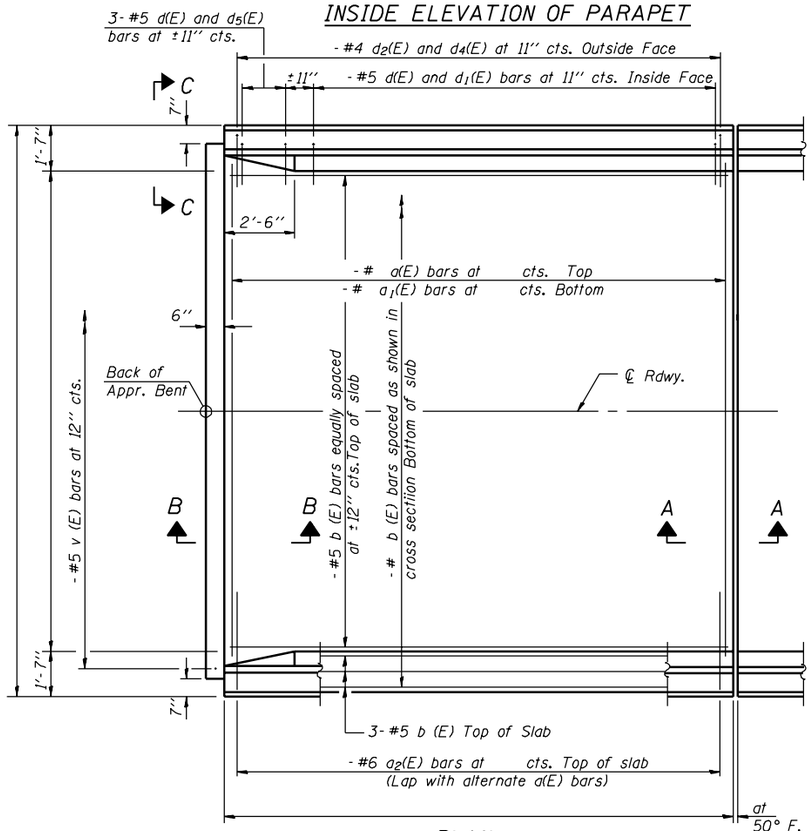
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

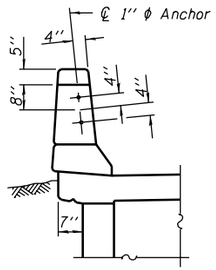
SHEET NO. -
- SHEETS



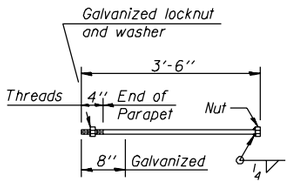
INSIDE ELEVATION OF PARAPET



PLAN

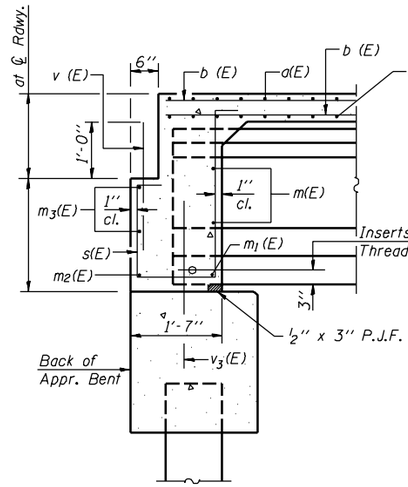


VIEW C-C

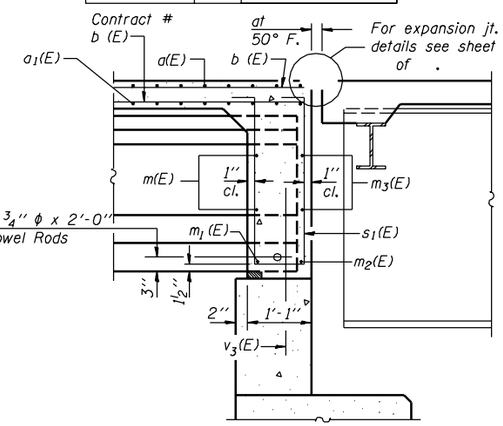


1'' ϕ ANCHOR BOLT

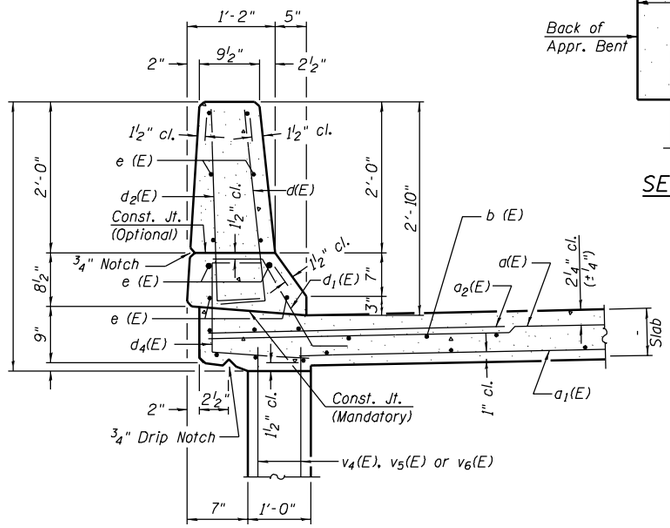
(Cost included with Concrete Superstructure.)



SECTION B-B

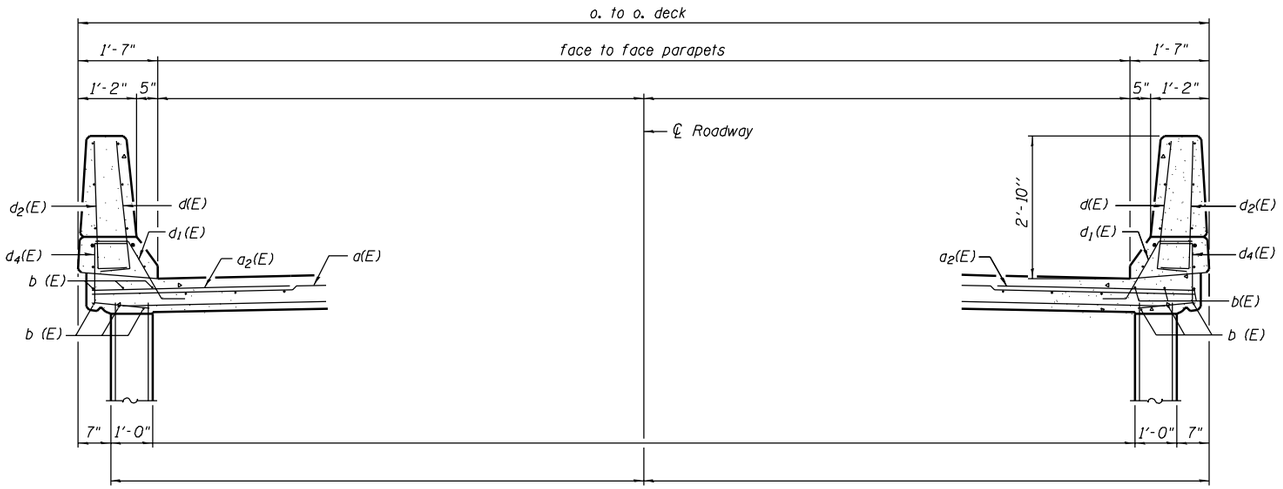


SECTION A-A



SECTION THRU PARAPET

Notes:
See sheets and of for v3(E) thru v6(E) bars.



CROSS SECTION

DESIGNED -	- 200
CHECKED -	EXAMINED
DRAWN -	ENGINEER OF BRIDGE DESIGN
CHECKED -	PASSED
	ENGINEER OF BRIDGES AND STRUCTURES

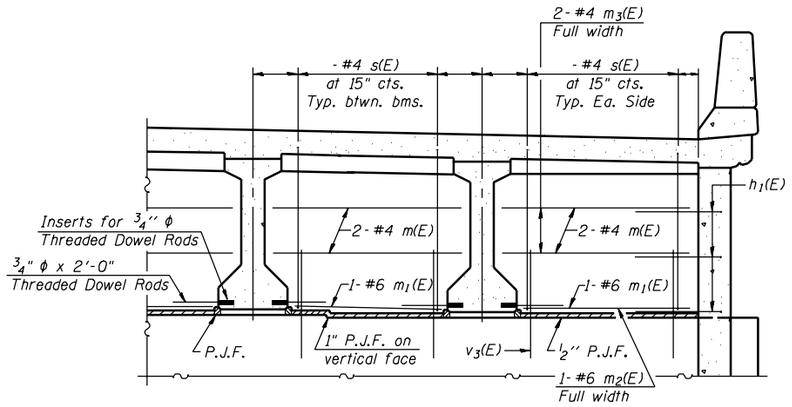
SA-1-0 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

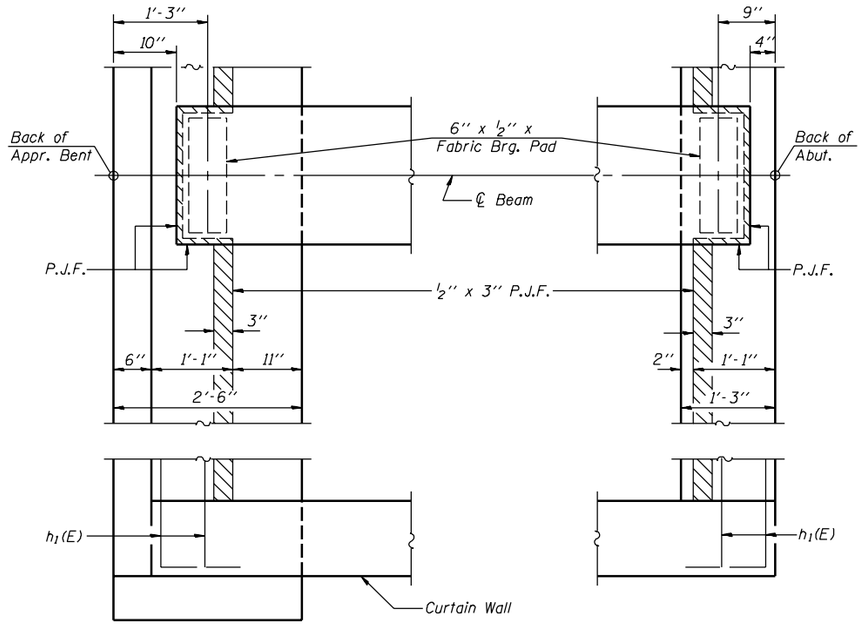
SHEET NO. -
- SHEETS

Contract #

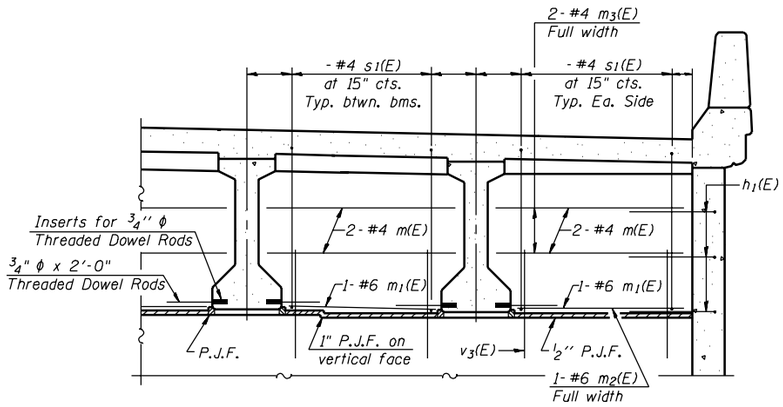


DIAPHRAGM AT APPROACH BENT

For location of m(E), m_1(E), m_2(E), and m_3(E) bars see Section B-B on sheet of .



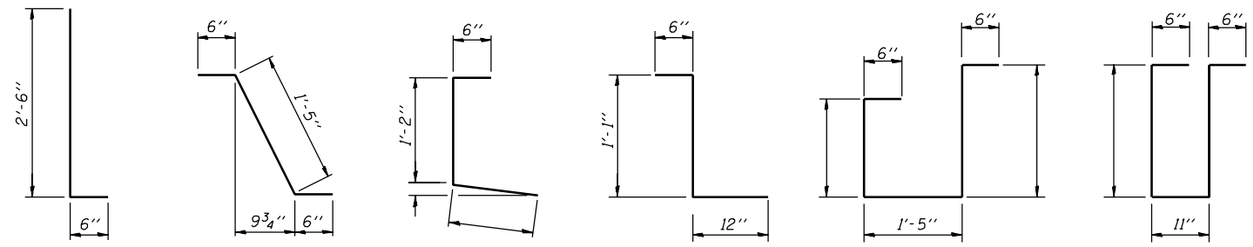
PARTIAL PLAN



DIAPHRAGM AT ABUTMENT

For location of m(E), m_1(E), m_2(E), and m_3(E) bars see Section A-A on sheet of .

Notes:
Reinforcement bars designated (E) shall be epoxy coated.
See sheet and of for h_1(E) and v_3(E) bars.



BARS d(E) & d_2(E) | BAR d_1(E) | BAR d_4(E) | BAR d_5(E) | BAR s(E) | BAR s_1(E)

TWO APPROACH SLABS
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d(E)				
d_1(E)				
d_2(E)		#6	4'-6"	
b (E)		#5		
b (E)				
d(E)		#5	3'-0"	
d_1(E)		#5	2'-5"	
d_2(E)		#4	3'-0"	
d_4(E)		#4		
d_5(E)		#5	2'-7"	
e (E)		#4		
e (E)		#5		
e (E)		#8		
m(E)		#4		
m_1(E)		#6		
m_2(E)		#6		
m_3(E)		#4		
s(E)		#4		
s_1(E)		#4		
v (E)		#5		
Reinforcement Bars, Epoxy Coated			Pound	
Concrete Superstructure			Cu. Yd.	

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

SA-1D-0

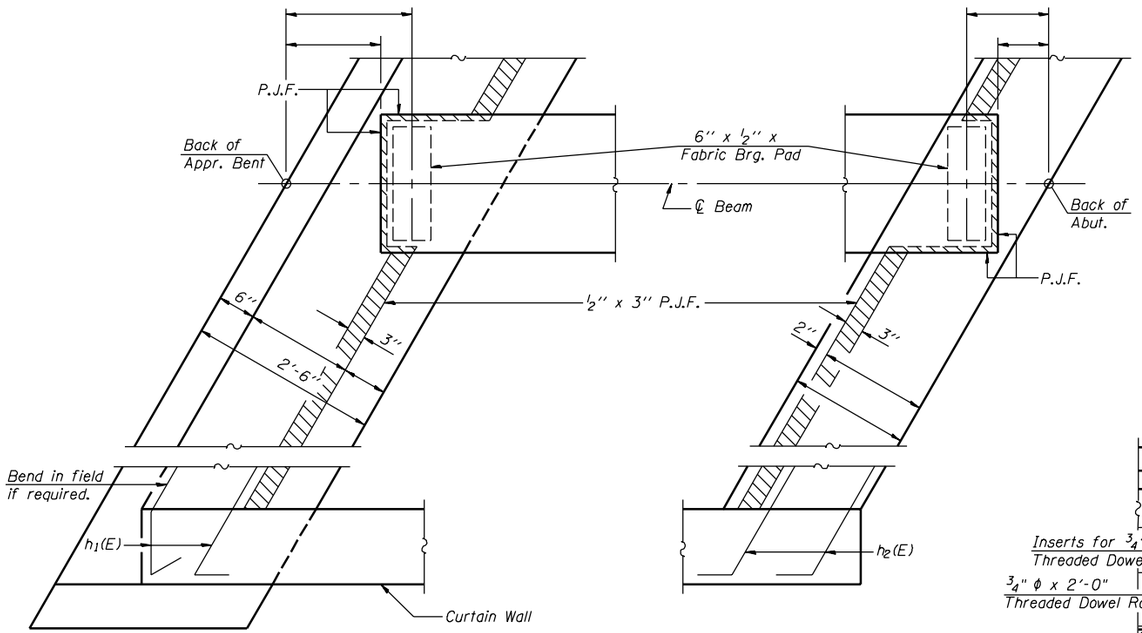
10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

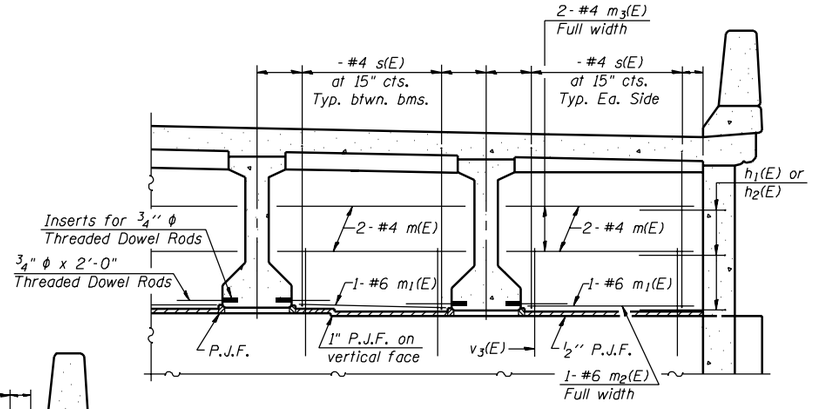
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-				
-	-	-		
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. -
- SHEETS

Contract #

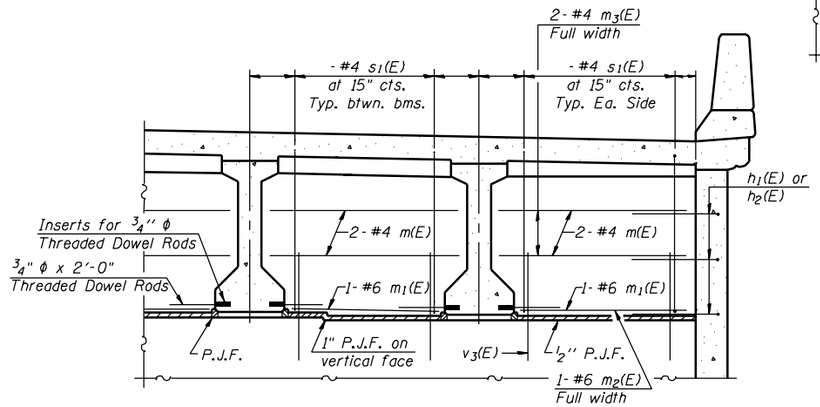


PARTIAL PLAN



DIAPHRAGM AT APPROACH BENT

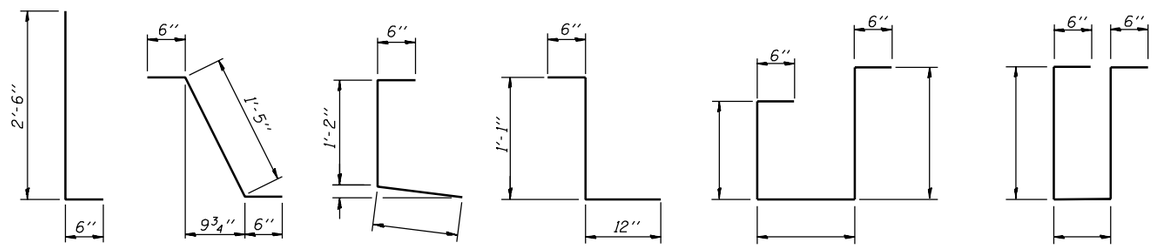
For location of m(E), m_1(E), m_2(E), and m_3(E) bars see Section B-B on sheet of .



DIAPHRAGM AT ABUTMENT

For location of m(E), m_1(E), m_2(E), and m_3(E) bars see Section A-A on sheet of .

Notes:
Reinforcement bars designated (E) shall be epoxy coated.
See sheet and of for h_1(E), h_2(E) and v_3(E) bars.



BARS d(E) & d_2(E) BAR d_1(E) BAR d_4(E) BAR d_5(E) BAR s(E) BAR s_1(E)

TWO APPROACH SLABS
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d(E)				
d_1(E)				
d_2(E)		#6	4'-6''	
d_3(E)				
b (E)		#5		
b (E)				
d(E)		#5	3'-0''	
d_1(E)		#5	2'-5''	
d_2(E)		#4	3'-0''	
d_4(E)		#4		
d_5(E)		#5	2'-7''	
e (E)		#4		
e (E)		#5		
e (E)		#8		
m(E)		#4		
m_1(E)		#6		
m_2(E)		#6		
m_3(E)		#4		
s(E)		#4		
s_1(E)		#4		
v (E)		#5		
Reinforcement Bars, Epoxy Coated			Pound	
Concrete Superstructure			Cu. Yd.	

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

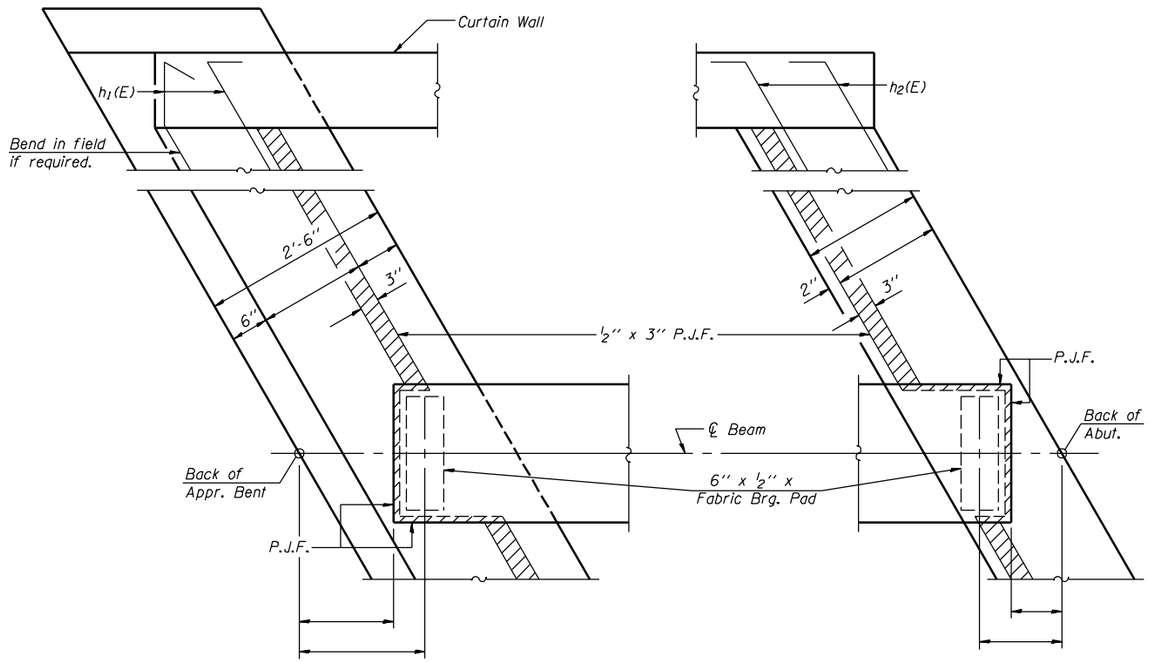
SA-ID-L 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-				
-	-	-		
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

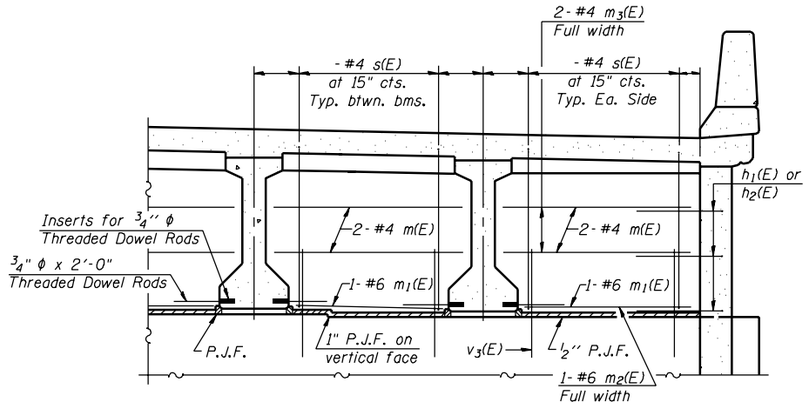
SHEET NO. -
- SHEETS

Contract #

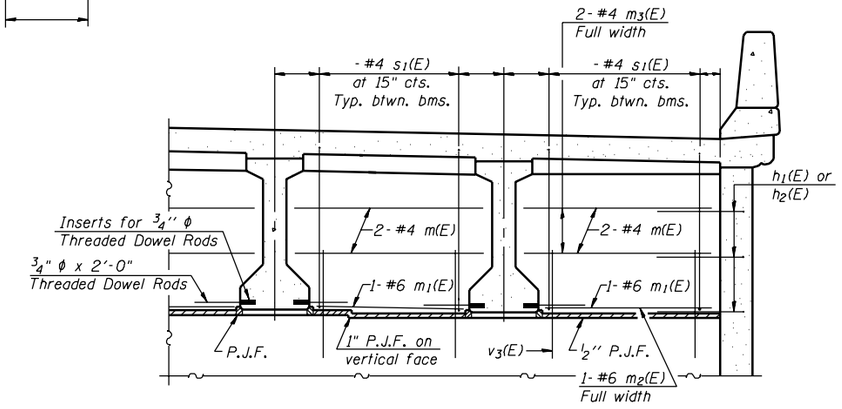


PARTIAL PLAN

Notes:
Reinforcement bars designated (E) shall be epoxy coated.
See sheet and of for h_1(E), h_2(E) and v_3(E) bars.



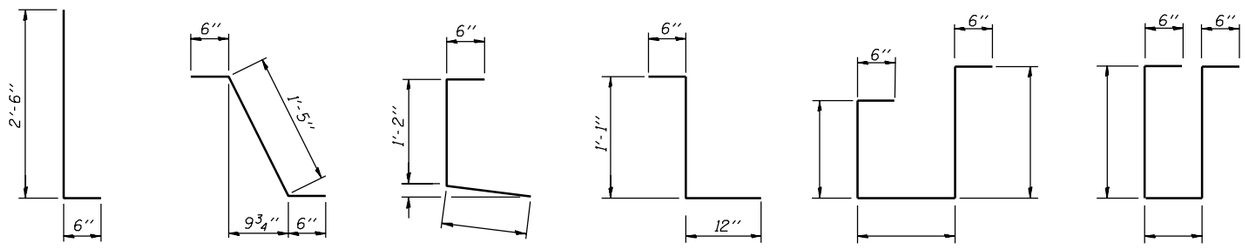
DIAPHRAGM AT APPROACH BENT
For location of m(E), m_1(E), m_2(E), and m_3(E) bars see Section B-B on sheet of .



DIAPHRAGM AT ABUTMENT
For location of m(E), m_1(E), m_2(E), and m_3(E) bars see Section A-A on sheet of .

TWO APPROACH SLABS
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d(E)				
d_1(E)				
d_2(E)		#6	4'-6"	
d_3(E)				
b (E)		#5		
b (E)				
d(E)		#5	3'-0"	
d_1(E)		#5	2'-5"	
d_2(E)		#4	3'-0"	
d_4(E)		#4		
d_5(E)		#5	2'-7"	
e (E)		#4		
e (E)		#5		
e (E)		#8		
m(E)		#4		
m_1(E)		#6		
m_2(E)		#6		
m_3(E)		#4		
s(E)		#4		
s_1(E)		#4		
v (E)		#5		
Reinforcement Bars, Epoxy Coated			Pound	
Concrete Superstructure			Cu. Yd.	



DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

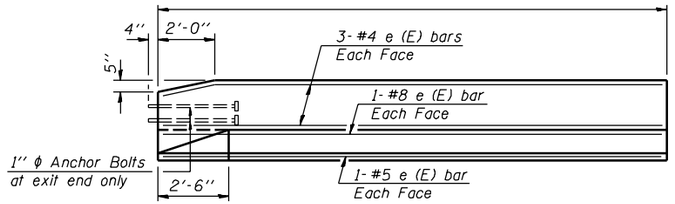
- 200
EXAMINED
ENGINEER OF BRIDGE DESIGN
PASSED
ENGINEER OF BRIDGES AND STRUCTURES

SA-1D-R 10-22-04

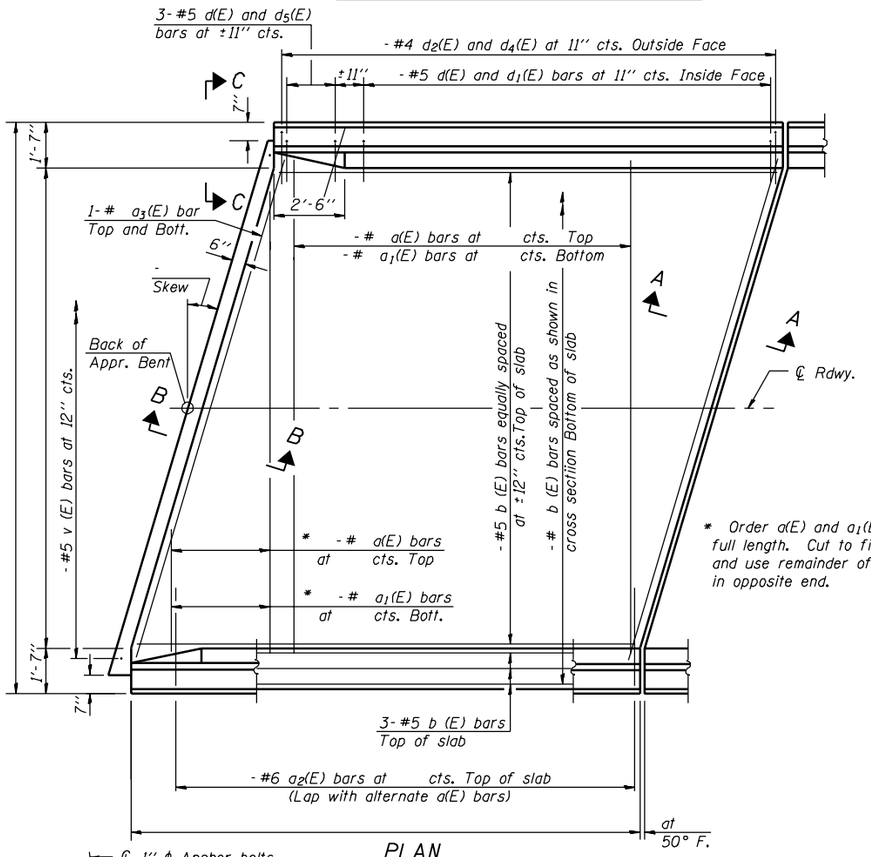
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

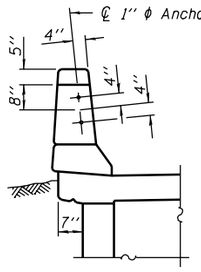


INSIDE ELEVATION OF PARAPET

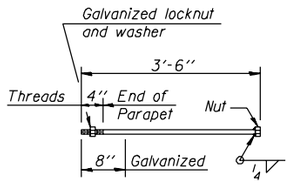


PLAN

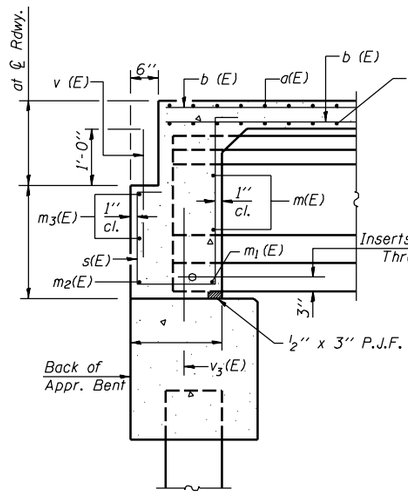
* Order d(E) and a_1(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.



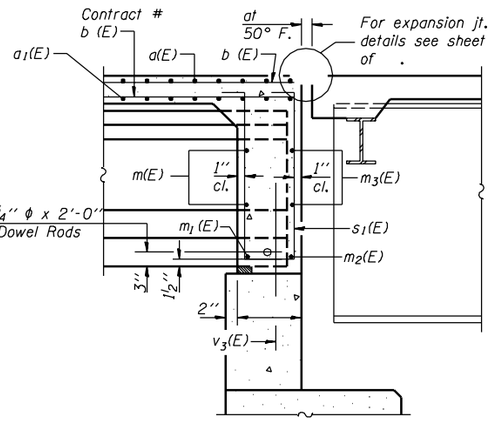
VIEW C-C



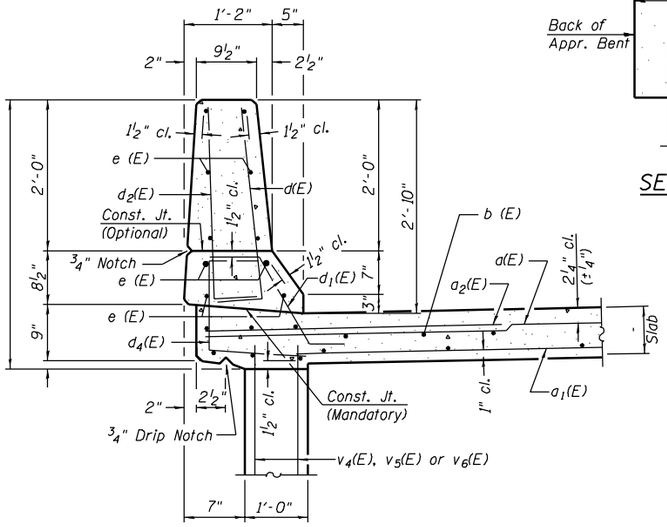
1" ϕ ANCHOR BOLT
(Cost included with Concrete Superstructure.)



SECTION B-B

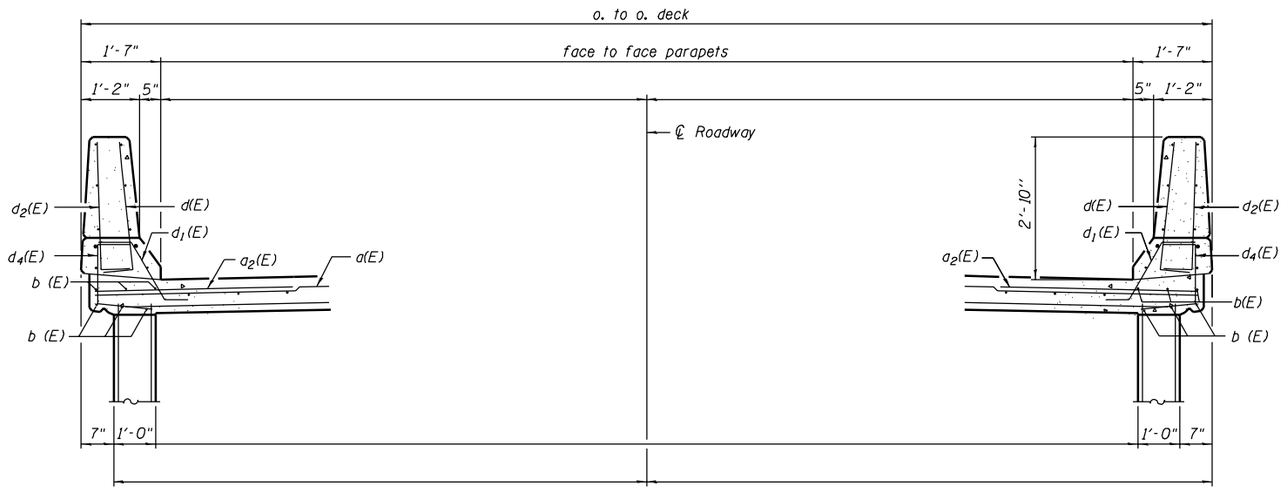


SECTION A-A



SECTION THRU PARAPET

Notes:
See sheets and of for v3(E) thru v6(E) bars.



CROSS SECTION

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

\- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

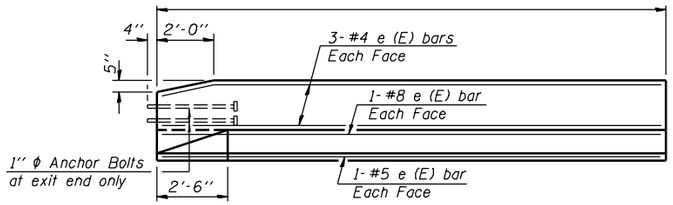
ENGINEER OF BRIDGES AND STRUCTURES

SA-1-L 10-22-04

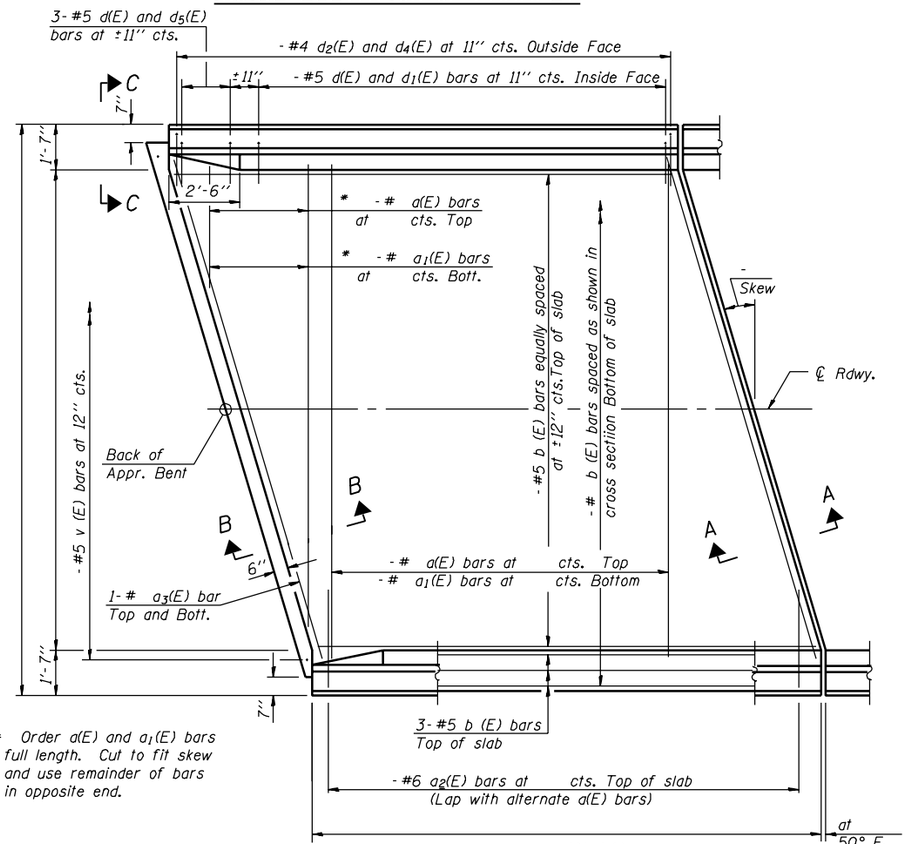
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-				
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

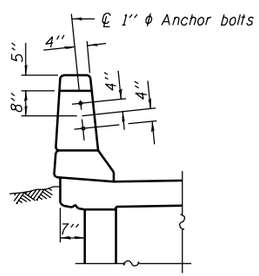


INSIDE ELEVATION OF PARAPET

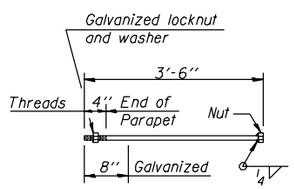


* Order a(E) and a_1(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.

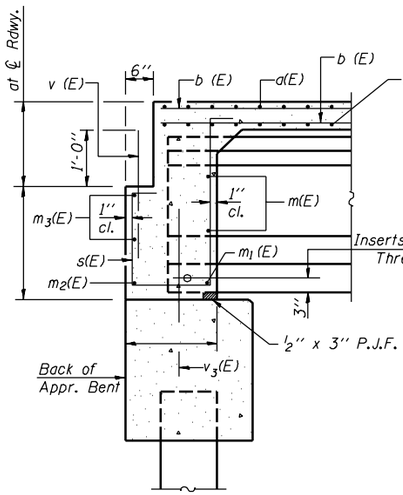
PLAN



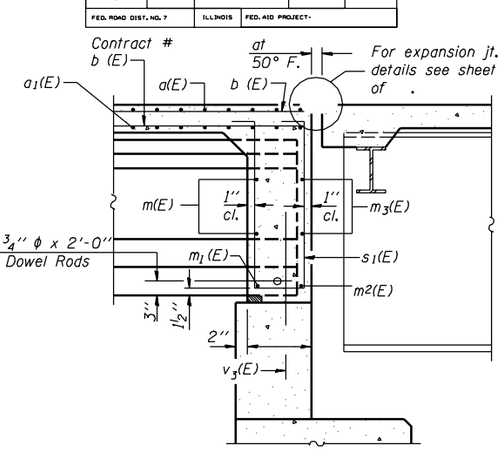
VIEW C-C



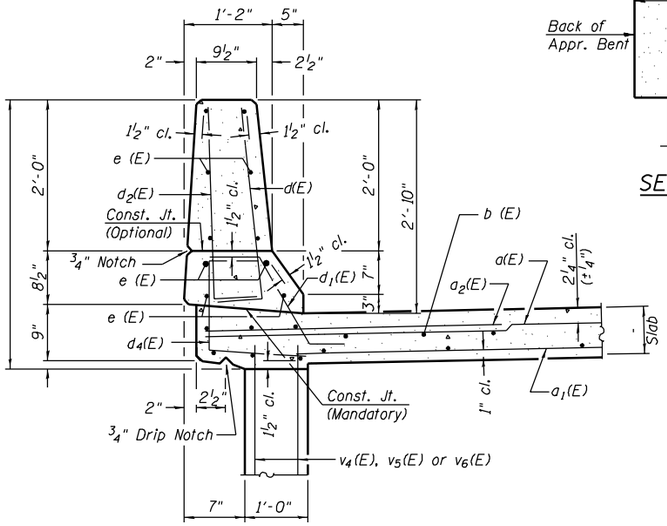
1" ϕ ANCHOR BOLT
(Cost included with Concrete Superstructure.)



SECTION B-B

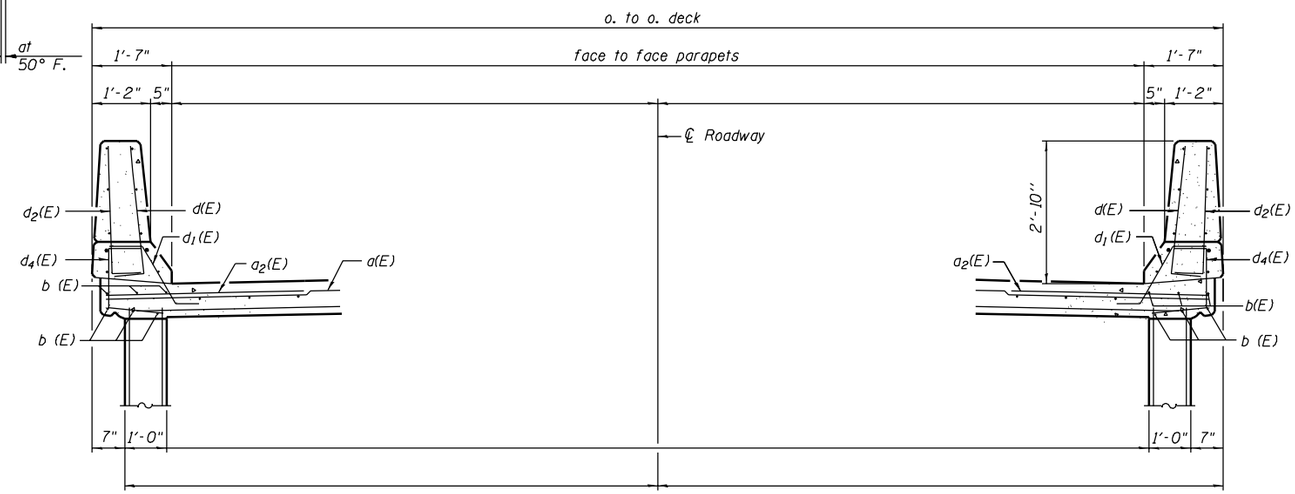


SECTION A-A



SECTION THRU PARAPET

Notes:
See sheets and of for v_3(E) thru v_6(E) bars.



CROSS SECTION

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

\- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

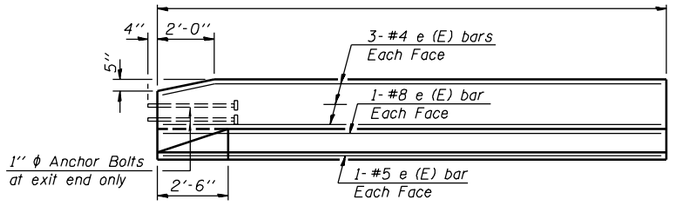
SA-1-R 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

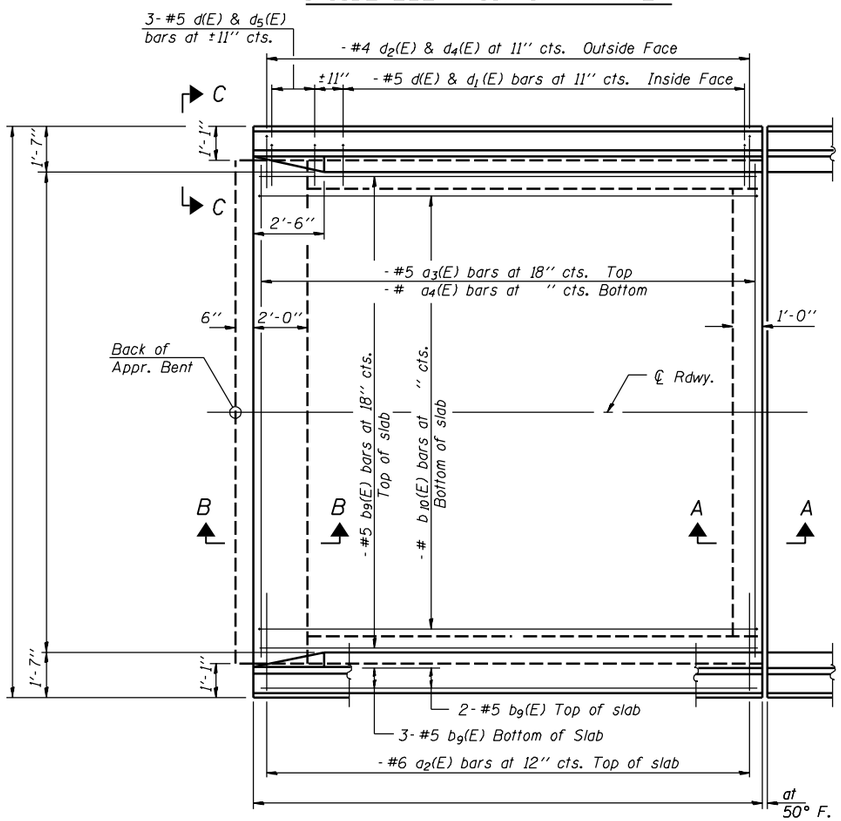
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-				
-	-	-		
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. -
- SHEETS

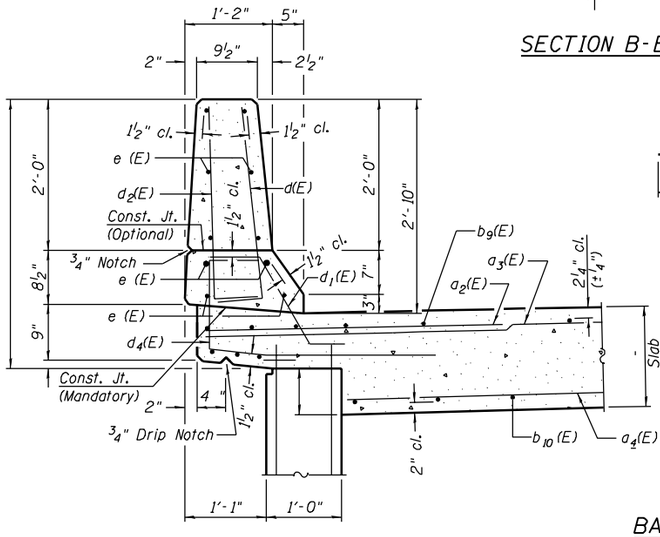
Contract #



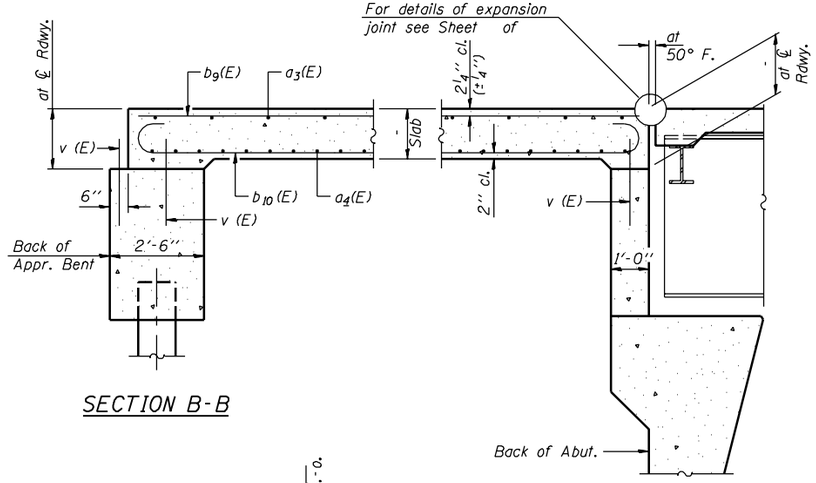
INSIDE ELEVATION OF PARAPET



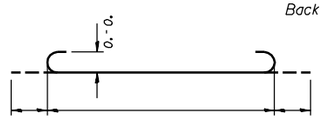
PLAN



SECTION THRU PARAPET

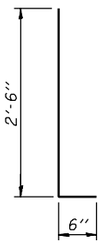


SECTION B-B

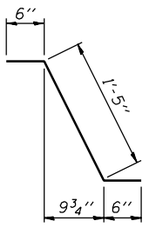


SECTION A-A

BAR b10(E)



BARS d(E) & d2(E)

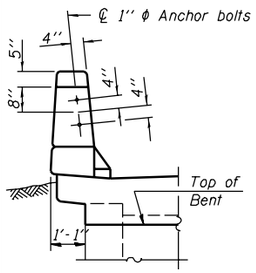


BAR d1(E)

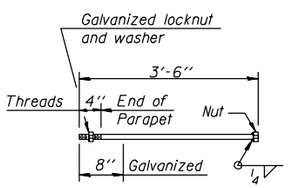
TWO APPROACH SLABS
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a2(E)		#6	4'-6"	
a3(E)		#5		
a4(E)				
b9(E)		#5		
b10(E)				
d(E)		#5	3'-0"	
d1(E)		#5	2'-5"	
d2(E)		#4	3'-0"	
d4(E)		#4		
d5(E)		#5	4'-8"	
e (E)		#4		
e (E)		#5		
e (E)		#8		
Reinforcement Bars. Epoxy Coated			Pound	
Concrete Superstructure			Cu. Yd.	

Reinforcement bars designated (E) shall be epoxy coated.



VIEW C-C



1" ϕ ANCHOR BOLT
(Cost included with
Concrete Superstructure)

-	200

EXAMINED

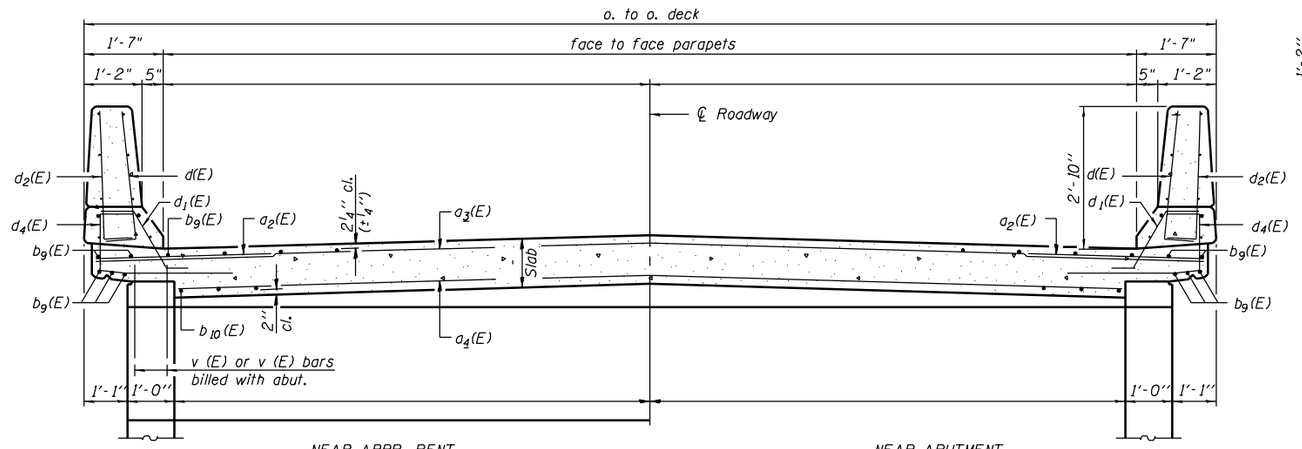
ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

DESIGNED	-
CHECKED	-
DRAWN	-
CHECKED	-

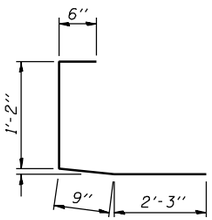
SA-2-0 10-22-04



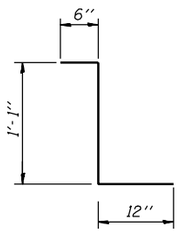
NEAR APPR. BENT

CROSS SECTION

NEAR ABUTMENT



BAR d4(E)



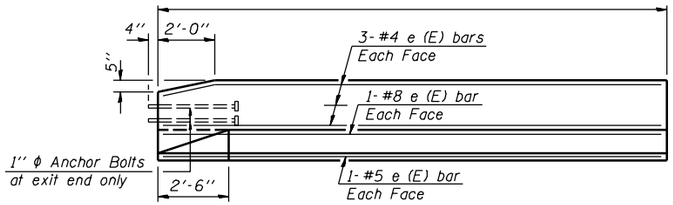
BAR d5(E)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

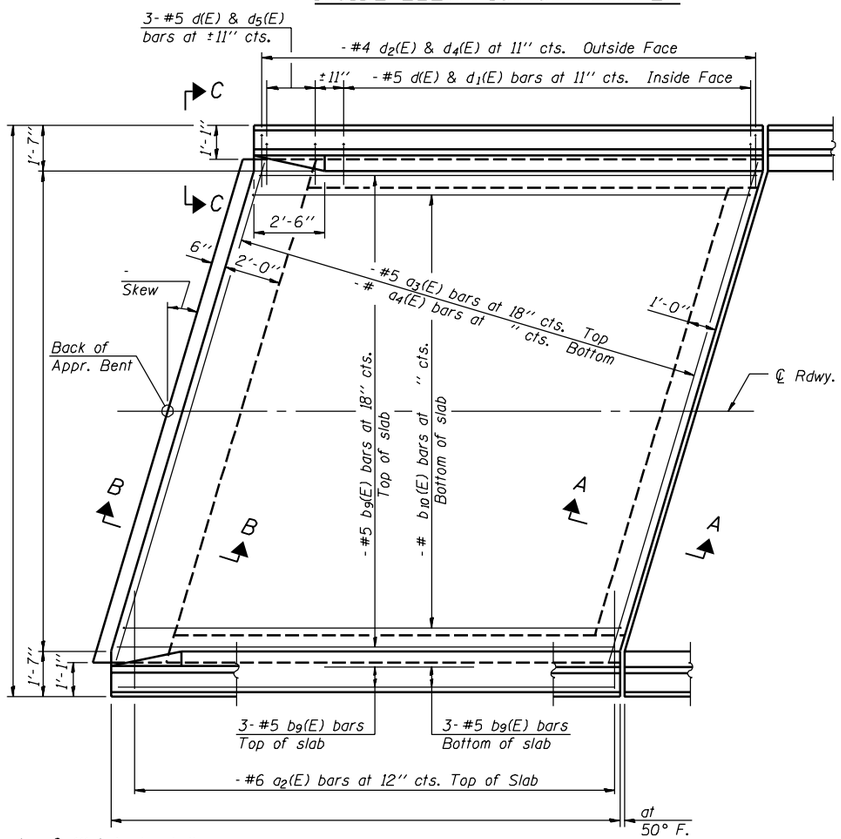
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

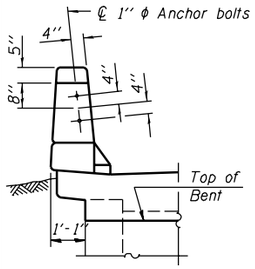
Contract #



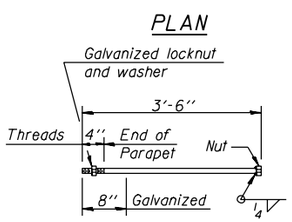
INSIDE ELEVATION OF PARAPET



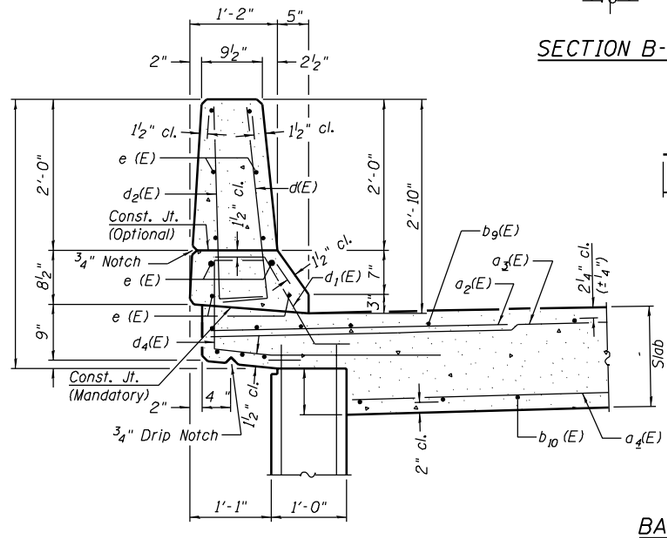
PLAN



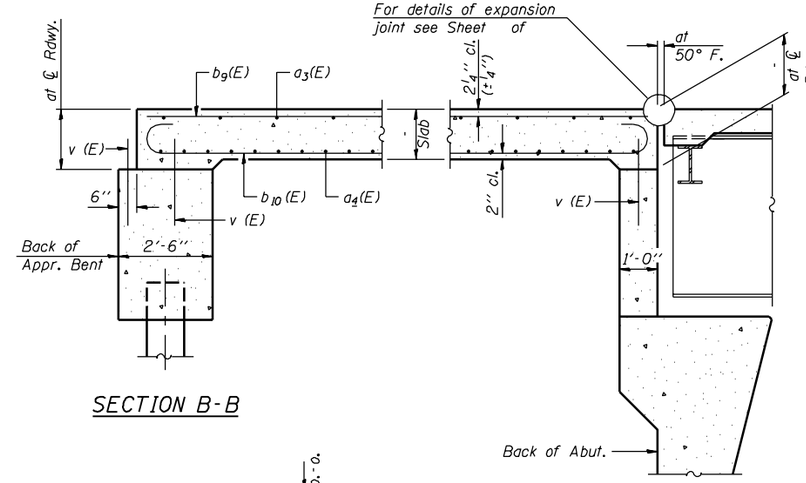
VIEW C-C



1" ϕ ANCHOR BOLT
(Cost included with
Concrete Superstructure)

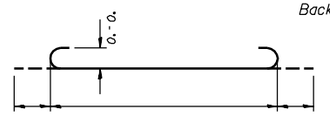


SECTION THRU PARAPET

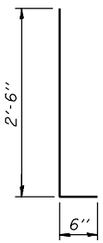


SECTION B-B

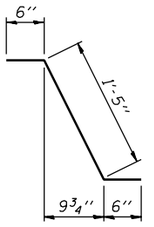
SECTION A-A



BAR b10(E)



BARS d(E) & d2(E)

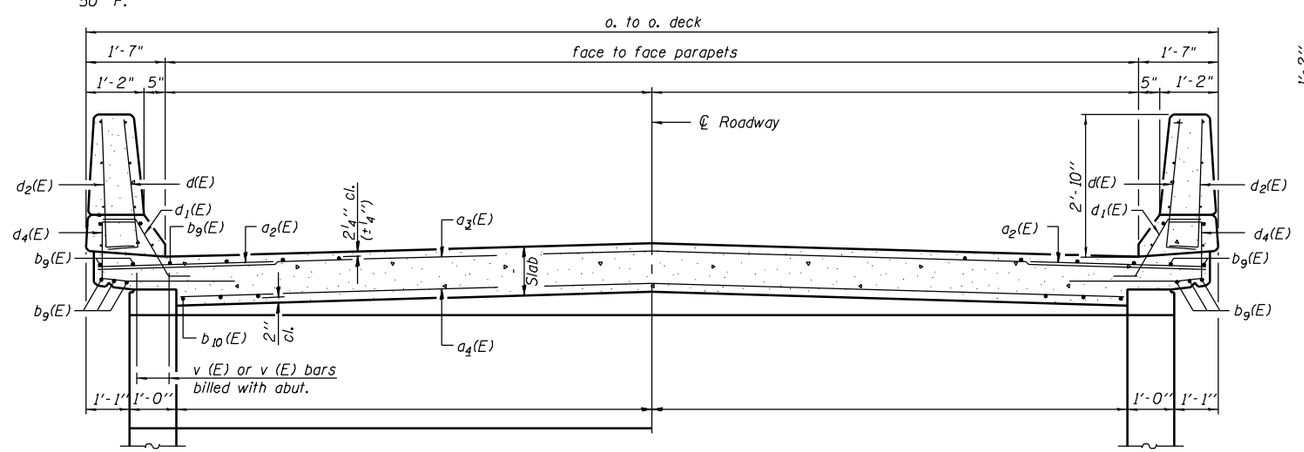


BAR d1(E)

TWO APPROACH SLABS
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a2(E)		#6	4'-6"	
a3(E)		#5		
a4(E)				
b9(E)		#5		
b10(E)				
d(E)		#5	3'-0"	
d1(E)		#5	2'-5"	
d2(E)		#4	3'-0"	
d4(E)		#4		
d5(E)		#5	4'-8"	
e (E)		#4		
e (E)		#5		
e (E)		#8		
Reinforcement Bars. Epoxy Coated			Pound	
Concrete Superstructure			Cu. Yd.	

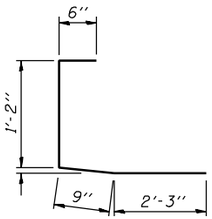
Reinforcement bars designated (E) shall be epoxy coated.



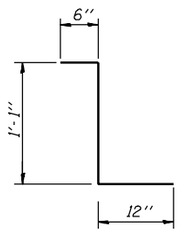
NEAR APPR. BENT

CROSS SECTION

NEAR ABUTMENT



BAR d4(E)



BAR d5(E)

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

SA-2-L

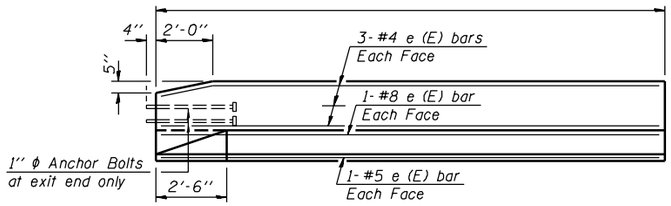
10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

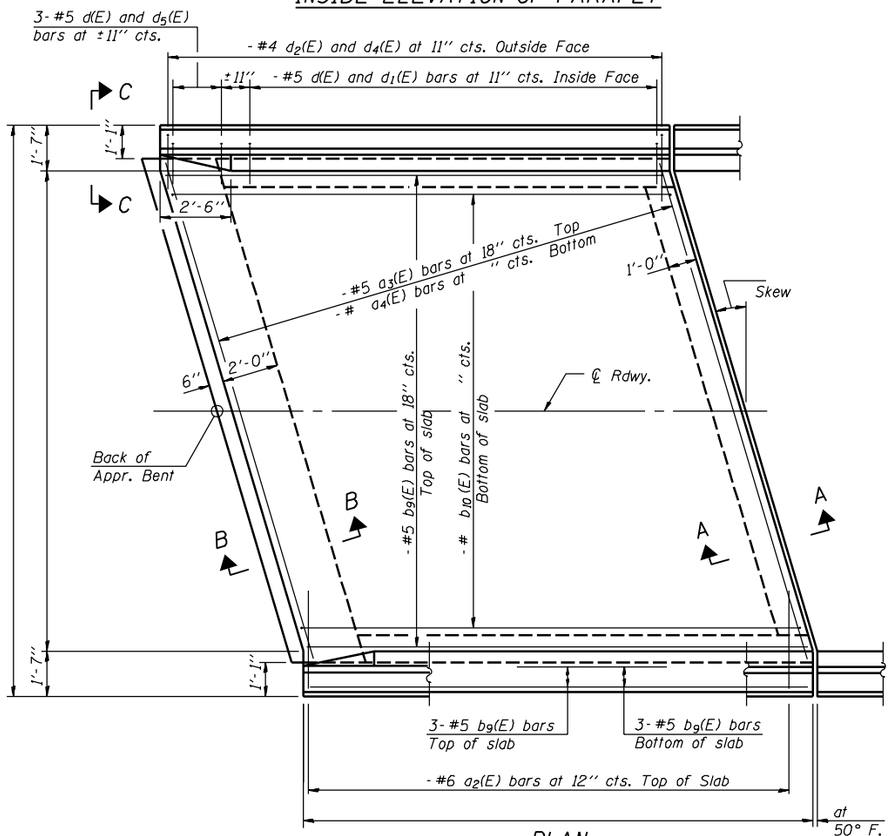
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #



INSIDE ELEVATION OF PARAPET



PLAN

VIEW C-C

1" ϕ ANCHOR BOLT
(Cost included with
Concrete Superstructure)

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

\- 200

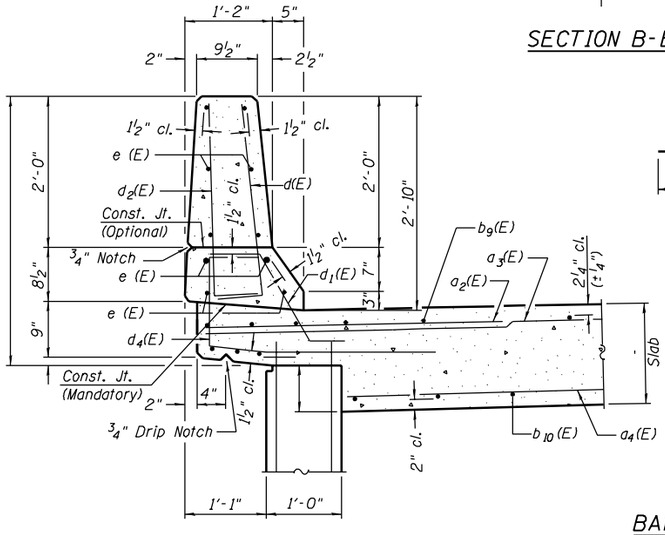
EXAMINED

ENGINEER OF BRIDGE DESIGN

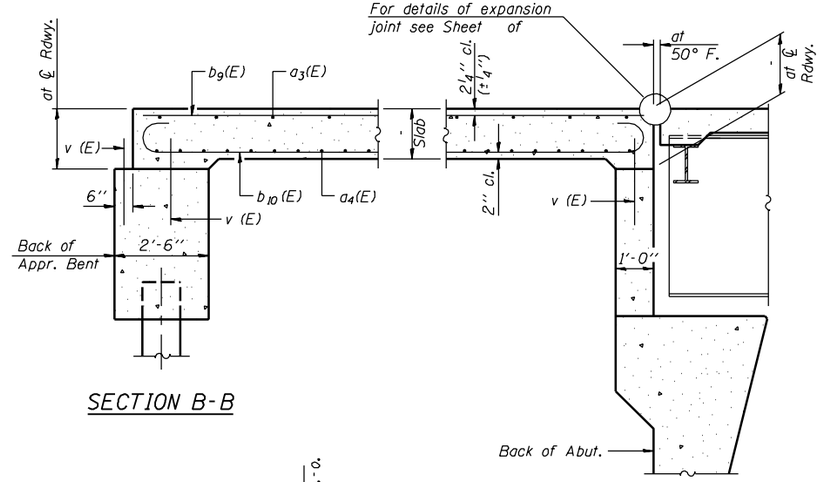
PASSED

ENGINEER OF BRIDGES AND STRUCTURES

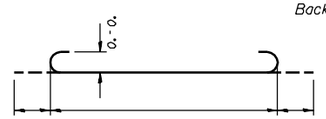
SA-2-R 10-22-04



SECTION THRU PARAPET

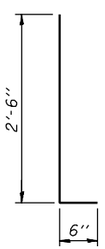


SECTION B-B

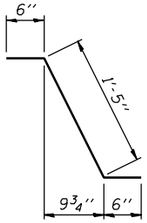


SECTION A-A

BAR b10(E)



BARS d(E) & d2(E)

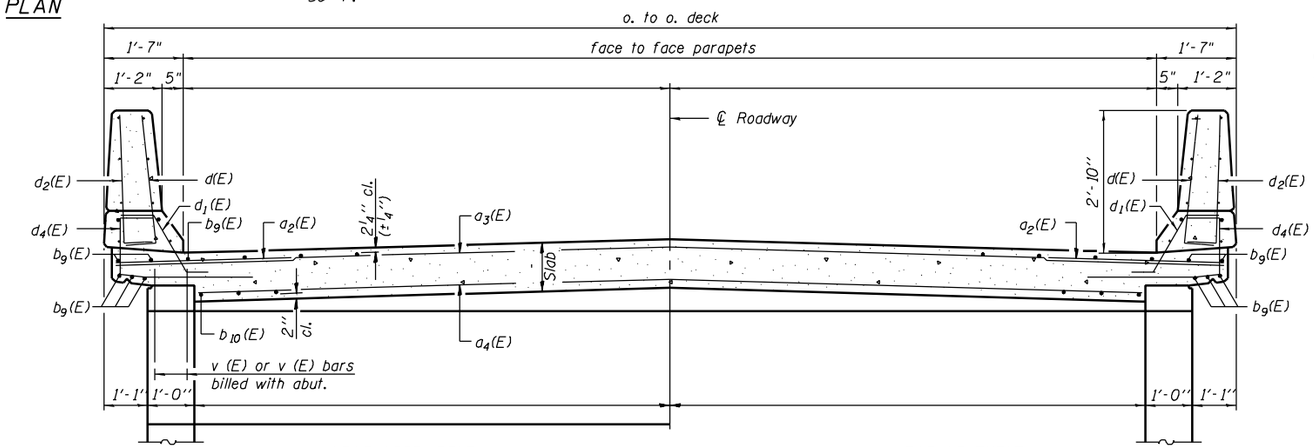


BAR d1(E)

TWO APPROACH SLABS
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a2(E)		#6	4'-6"	——
a3(E)		#5		——
a4(E)				——
b9(E)		#5		——
b10(E)				⊂⊃
d(E)		#5	3'-0"	⌴
d1(E)		#5	2'-5"	⌝
d2(E)		#4	3'-0"	⌴
d4(E)		#4		⌞
d5(E)		#5	4'-8"	⌝
e (E)		#4		——
e (E)		#5		——
e (E)		#8		——
Reinforcement Bars, Epoxy Coated			Pound	
Concrete Superstructure			Cu. Yd.	

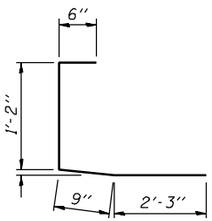
Reinforcement bars designated (E) shall be epoxy coated.



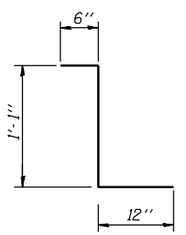
NEAR APPR. BENT

CROSS SECTION

NEAR ABUTMENT



BAR d4(E)



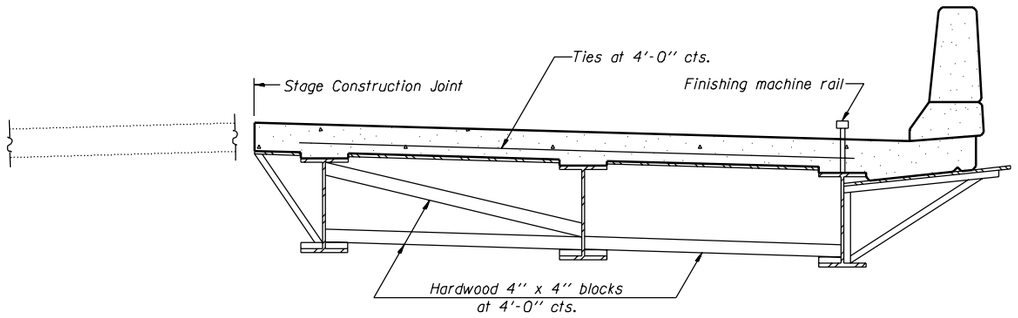
BAR d5(E)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

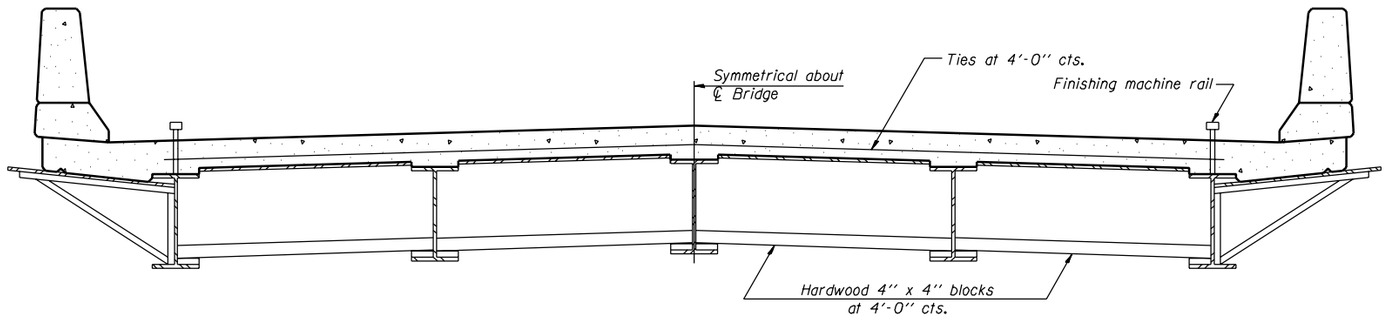
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #



FORM BRACES FOR
STAGE CONSTRUCTION



FORM BRACES FOR
STANDARD CONSTRUCTION

When cantilever forming brackets are used, the work shall be done according to Article 503.06, except as modified below and in the details shown on this sheet.

The finishing machine rails shall be placed on the top flange of the exterior beams.

The beams or girders, supporting cantilever forming brackets, shall be tied together at 4 foot intervals.

For Standard construction, or Stage Construction the Hardwood bracing materials shall be placed as shown between webs of beams in each bay.

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

SB-1

10-22-04

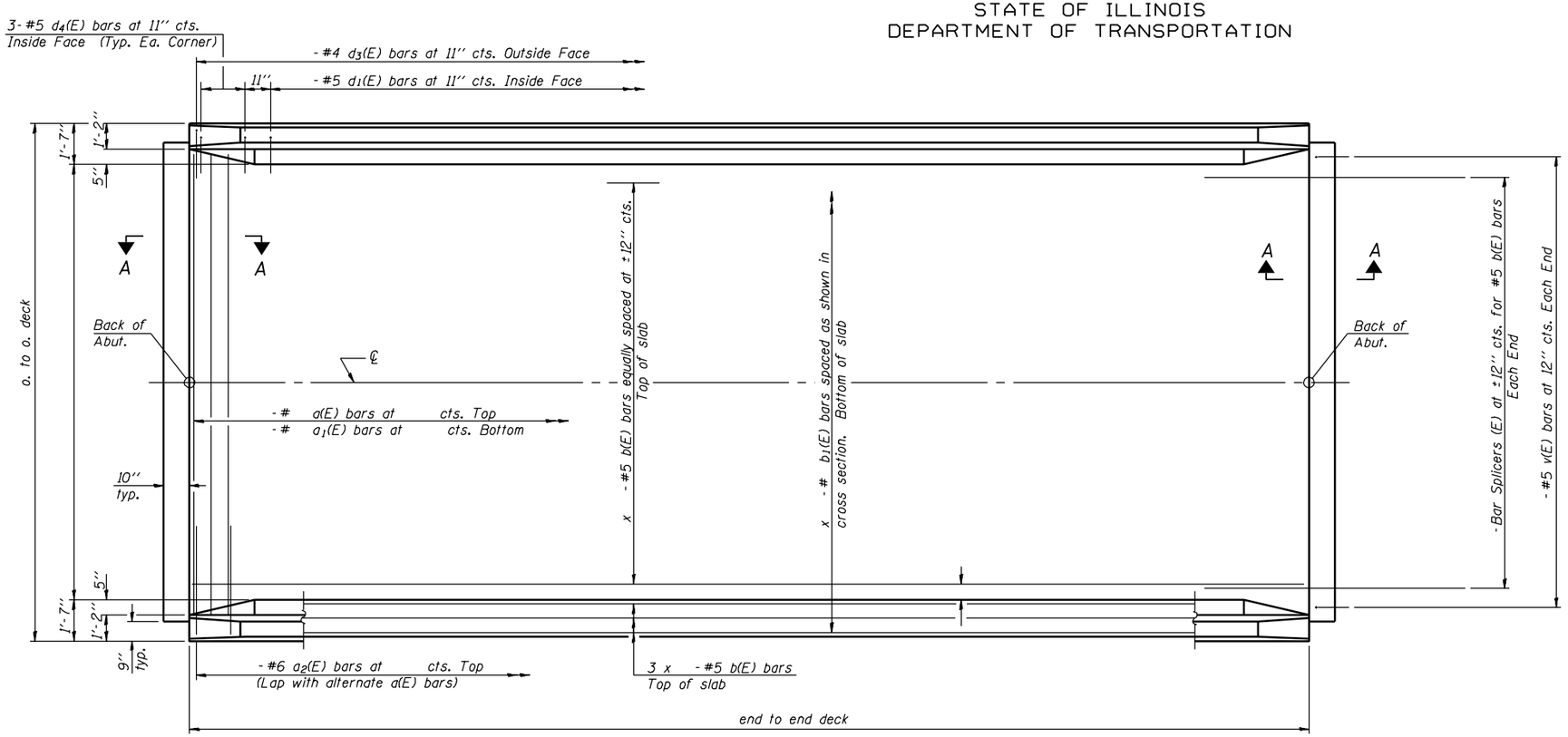
CANTILEVER FORMING BRACKETS
FOR SUPERSTRUCTURES WITH
W27 BEAMS AND SMALLER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

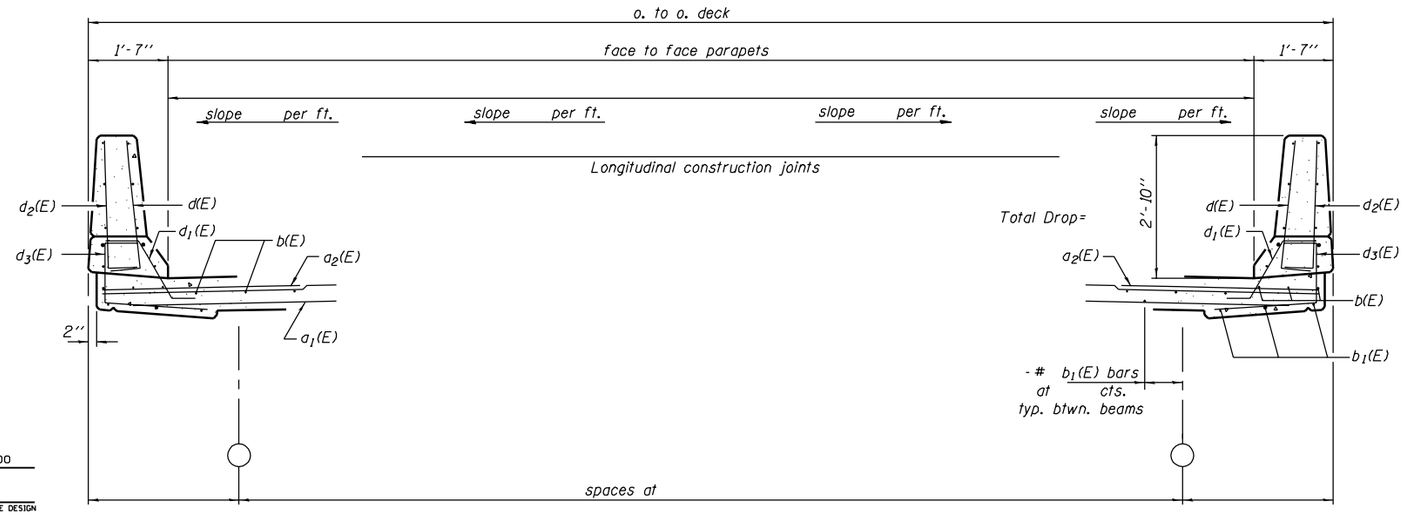
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #



PLAN



NEAR PIER NEAR MIDSPAN

CROSS SECTION
(Looking)

Notes:
See Sheet of for superstructure details and Bill of Material.
Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 20 x 3- #5 etc. indicates 20 lines of bars with 3 lengths per line.
See Sheet of for parapet reinforcement.

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200
EXAMINED
ENGINEER OF BRIDGE DESIGN
PASSED
ENGINEER OF BRIDGES AND STRUCTURES

SI-1-0 10-22-04

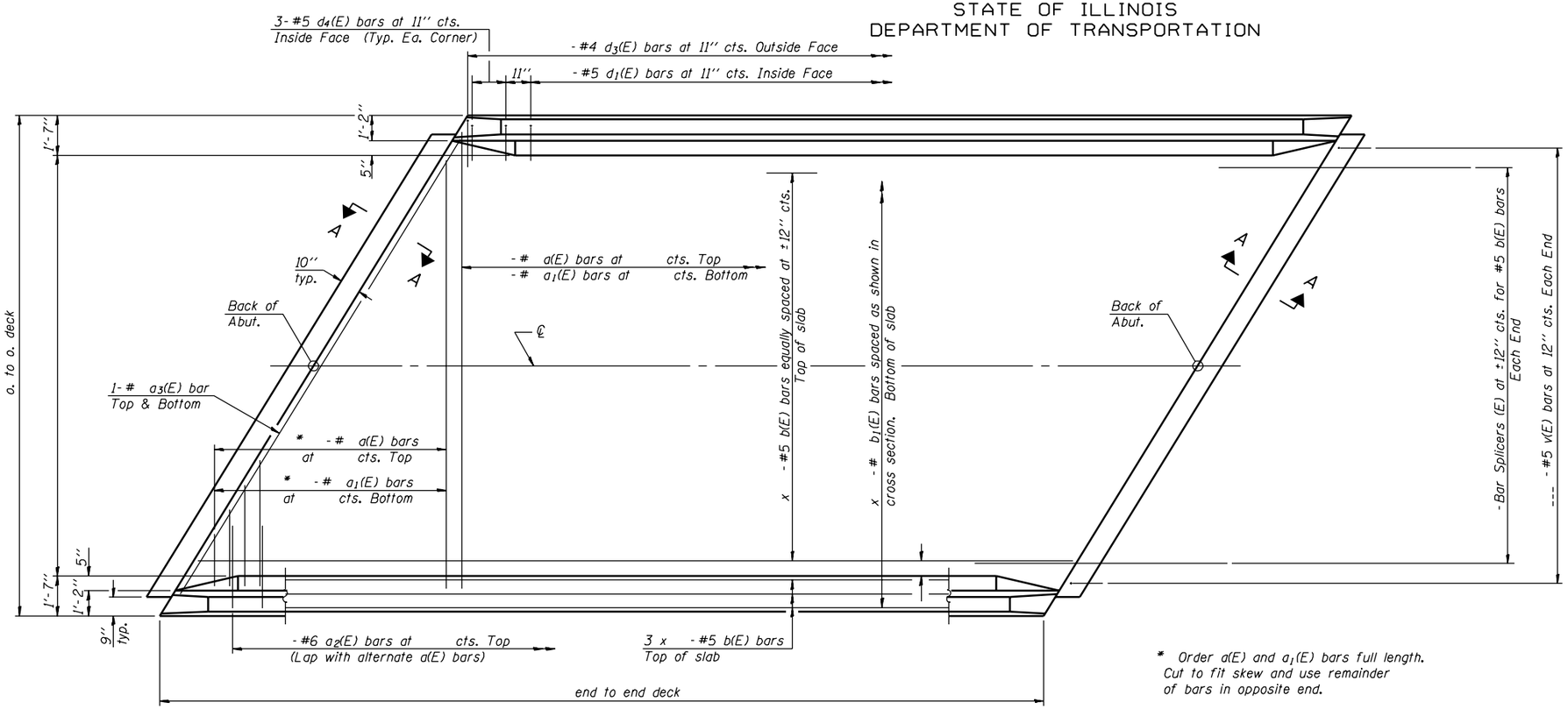
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -

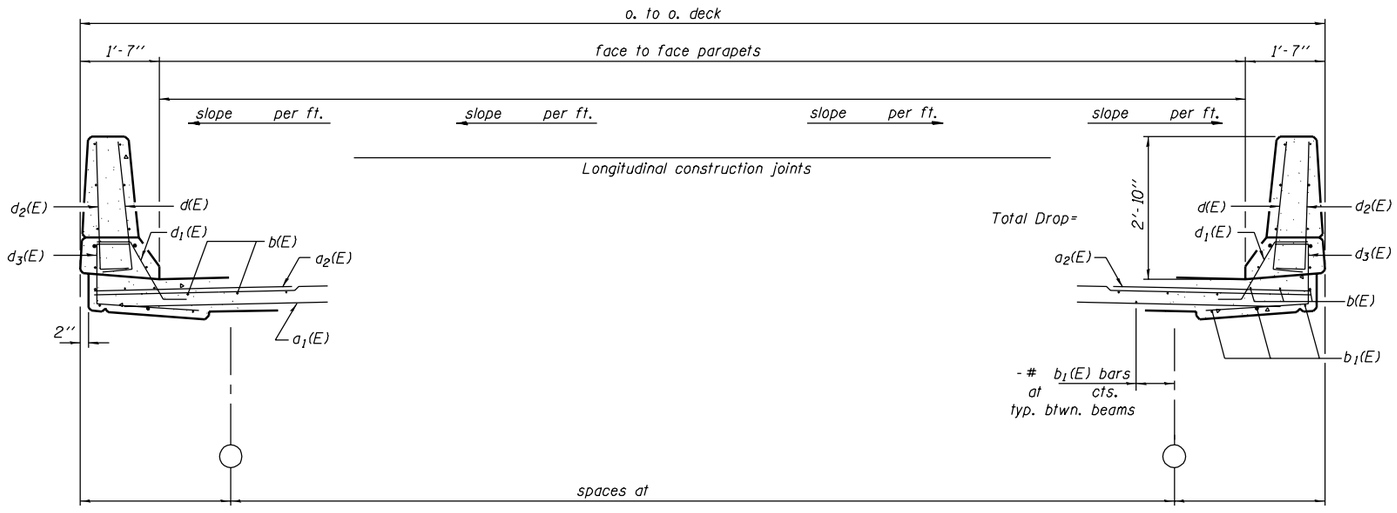
- SHEETS

Contract #



* Order a(E) and a_1(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.

PLAN



NEAR PIER NEAR MIDSPAN

CROSS SECTION
(Looking)

Notes:
See Sheet of for superstructure details and Bill of Material.
Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 20 x 3- #5 etc. indicates 20 lines of bars with 3 lengths per line.
See Sheet of for parapet reinforcement.

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

\- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

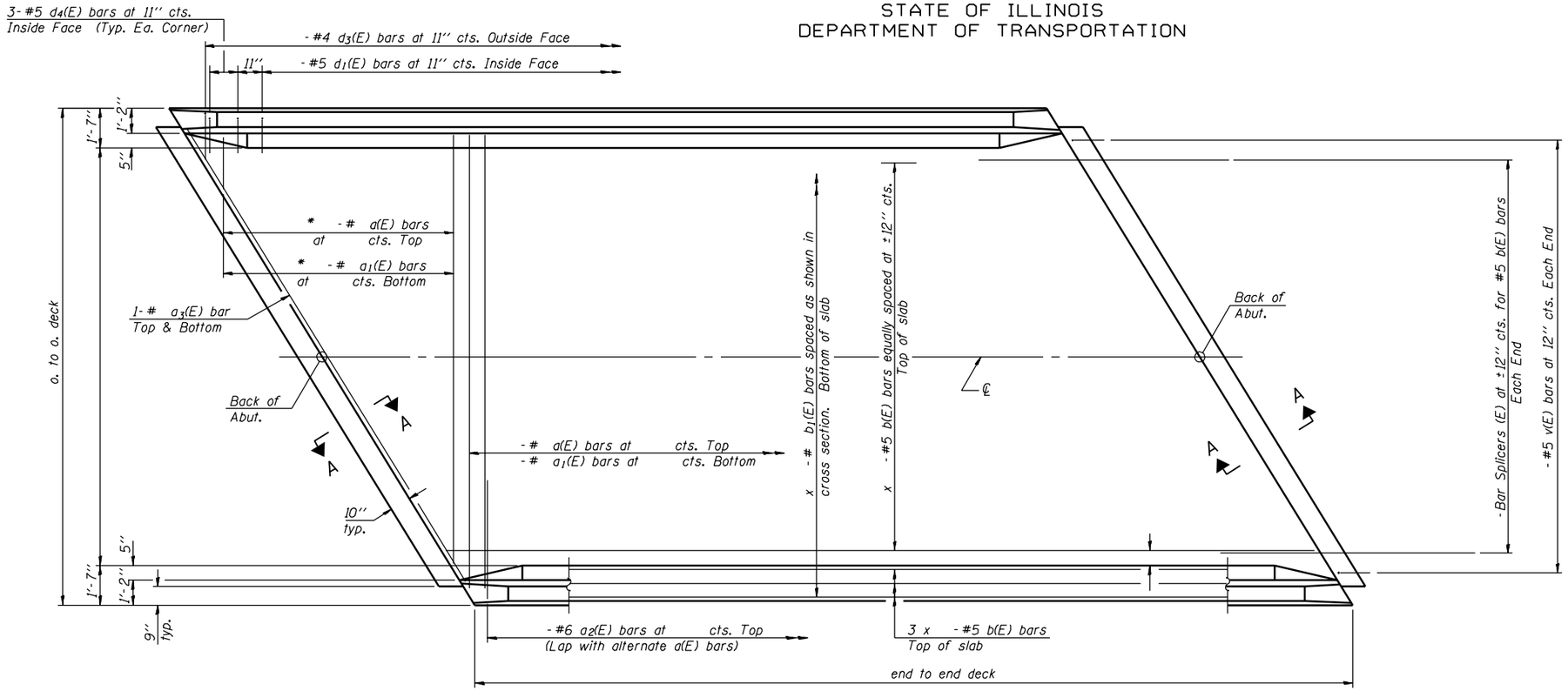
SI-1-L 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

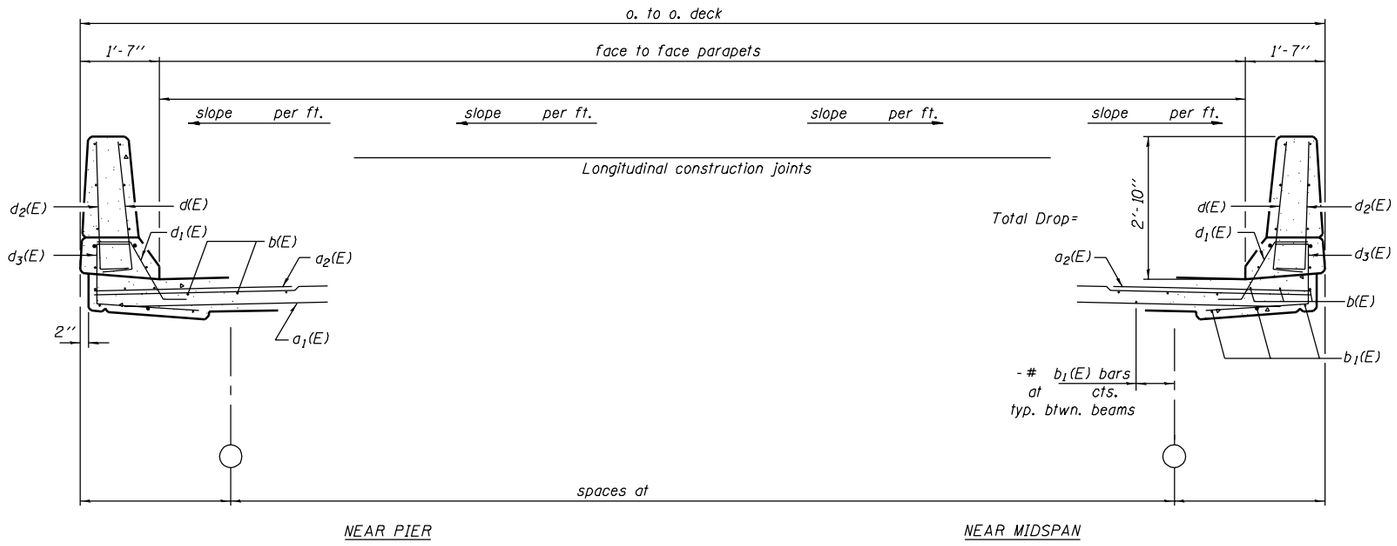
SHEET NO. -
- SHEETS

Contract #



* Order d(E) and a_1(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.

PLAN



NEAR PIER NEAR MIDSPAN

CROSS SECTION
(Looking)

Notes:
See Sheet of for superstructure details and Bill of Material.
Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 20 x 3- #5 etc. indicates 20 lines of bars with 3 lengths per line.
See Sheet of for parapet reinforcement.

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

\- 200

EXAMINED
ENGINEER OF BRIDGE DESIGN

PASSED
ENGINEER OF BRIDGES AND STRUCTURES

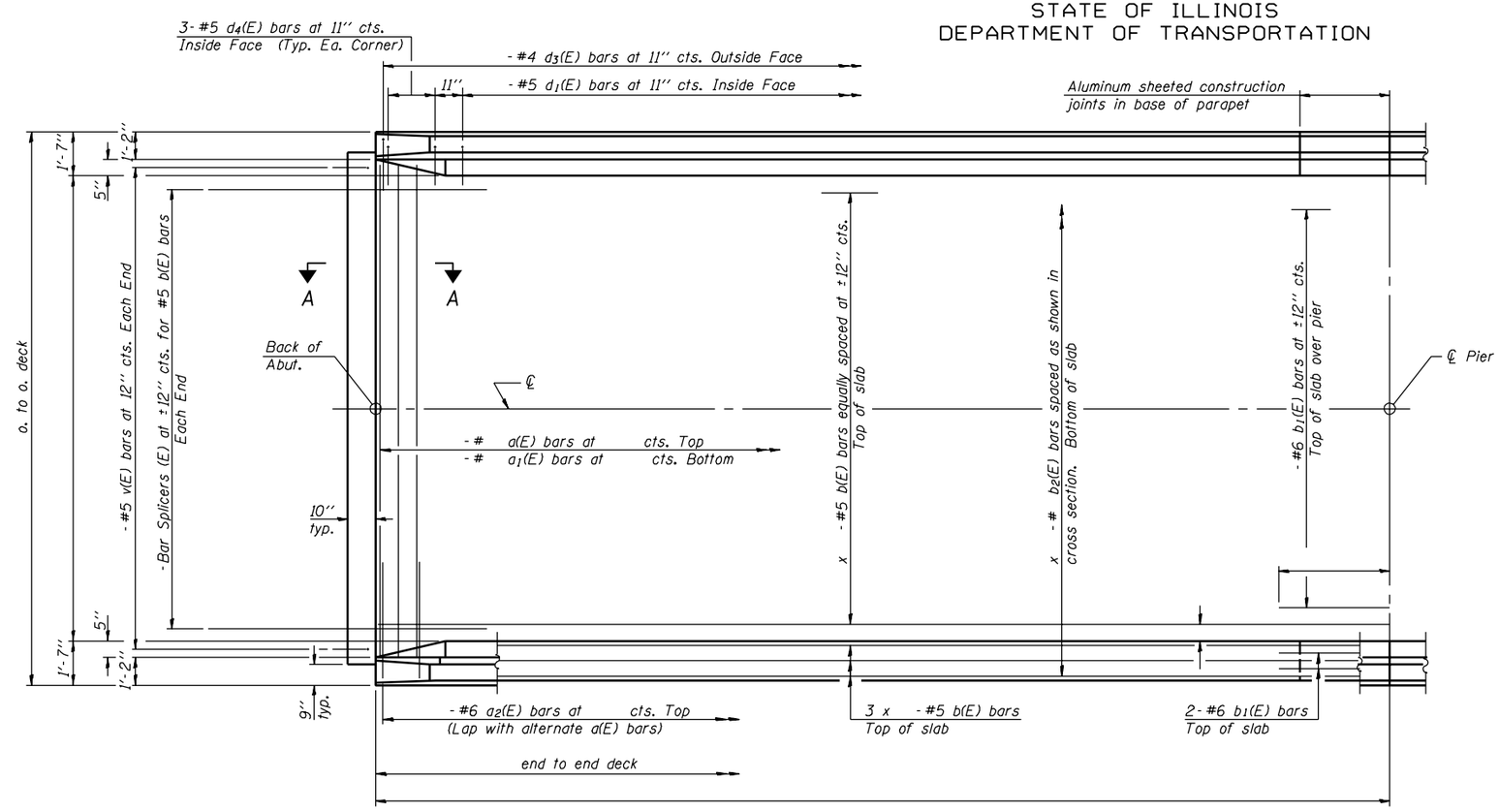
SI-1-R 10-22-04

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

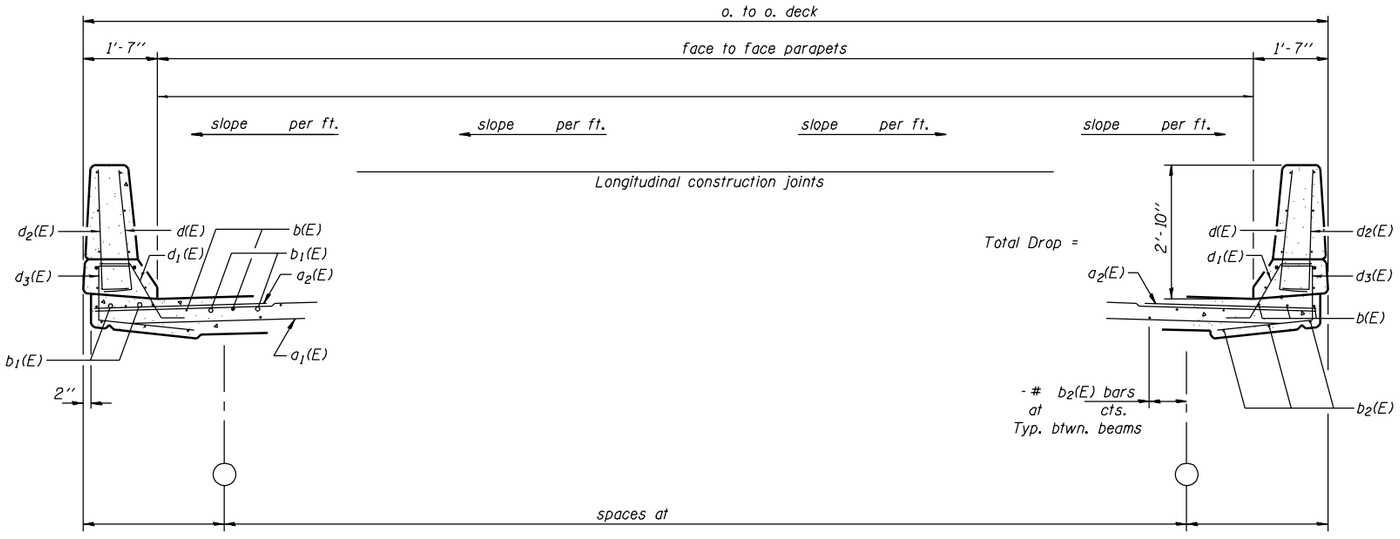
SHEET NO. - OF - SHEETS

Contract #

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



HALF PLAN



NEAR PIER — NEAR MIDSPAN

CROSS SECTION

(Looking)

Notes:
See Sheet of for superstructure details and Bill of Material.
Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.
See Sheet of for parapet reinforcement.

DESIGNED -	- 200
CHECKED -	EXAMINED
DRAWN -	ENGINEER OF BRIDGE DESIGN
CHECKED -	PASSED
	ENGINEER OF BRIDGES AND STRUCTURES

SI-2-0 10-22-04

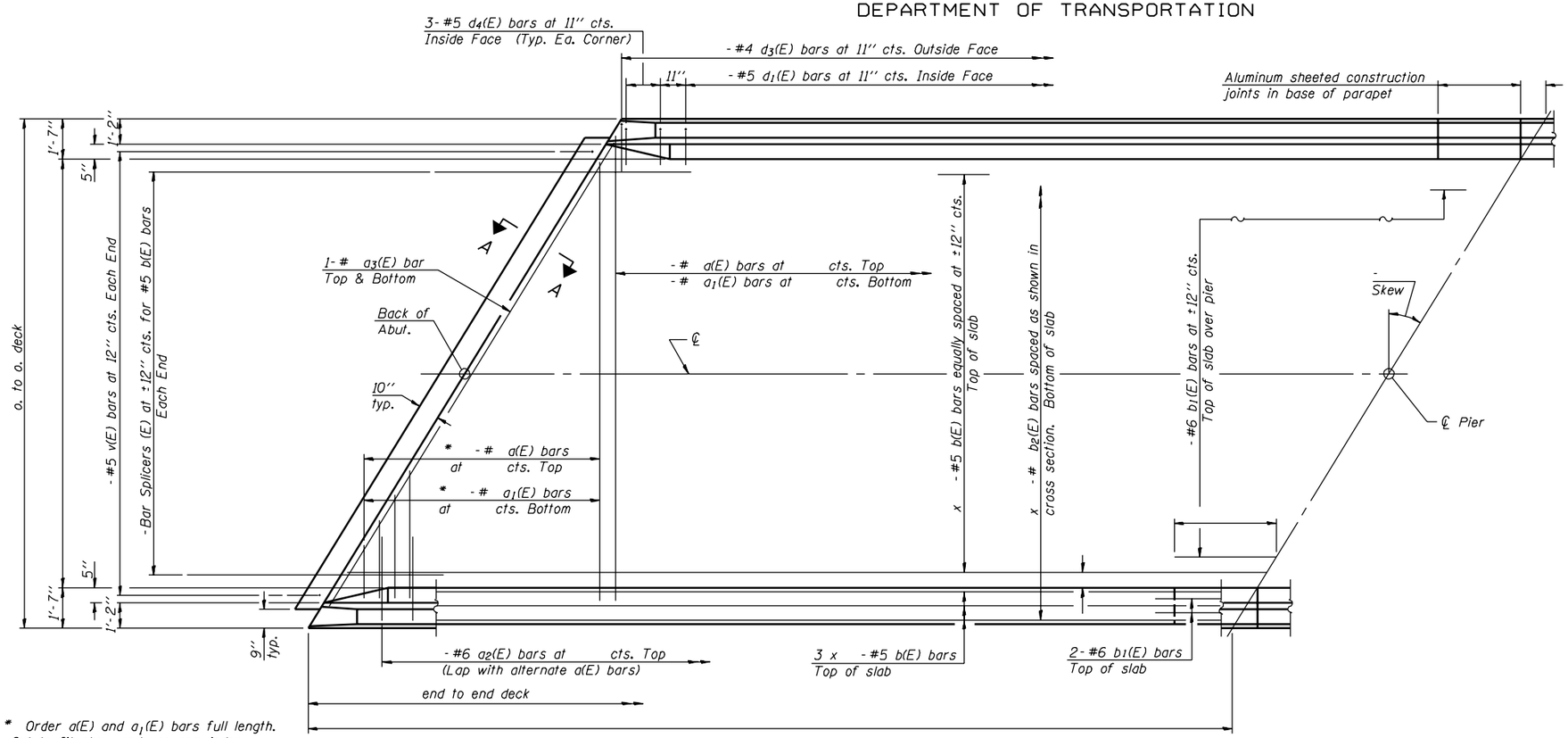
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-				
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -

- SHEETS

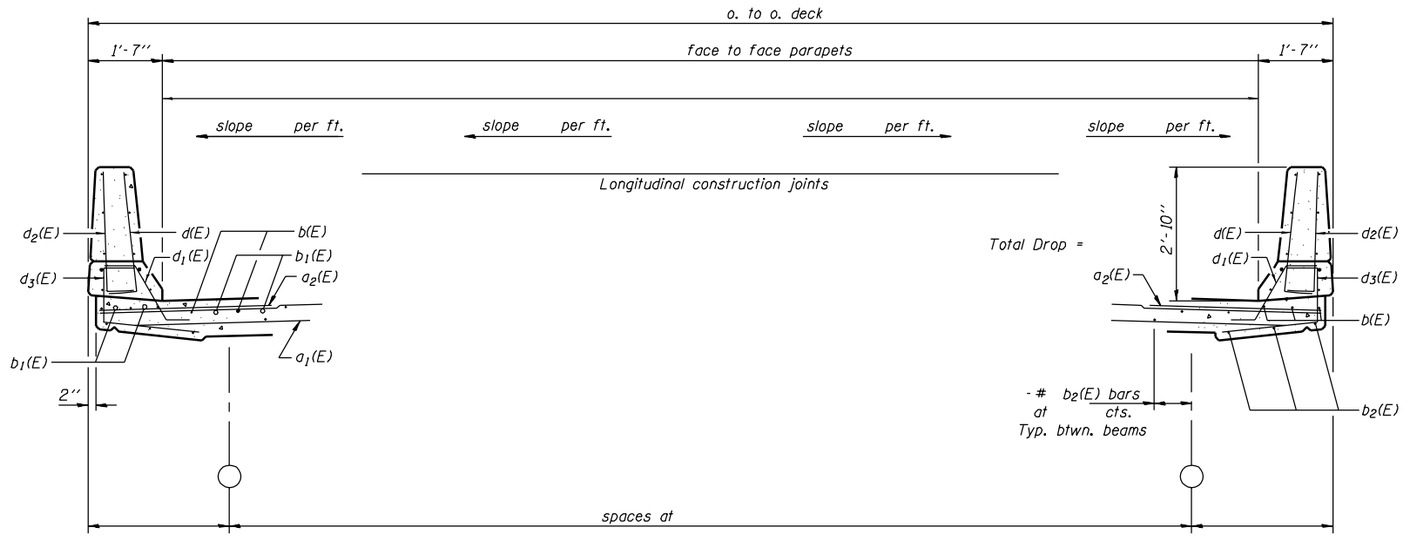
Contract #

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



* Order a(E) and a_1(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.

HALF PLAN



NEAR PIER

CROSS SECTION

(Looking)

NEAR MIDSPAN

Notes:
See Sheet of for superstructure details and Bill of Material.
Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 20 x 3- #5 etc. indicates 20 lines of bars with 3 lengths per line.
See Sheet of for parapet reinforcement.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
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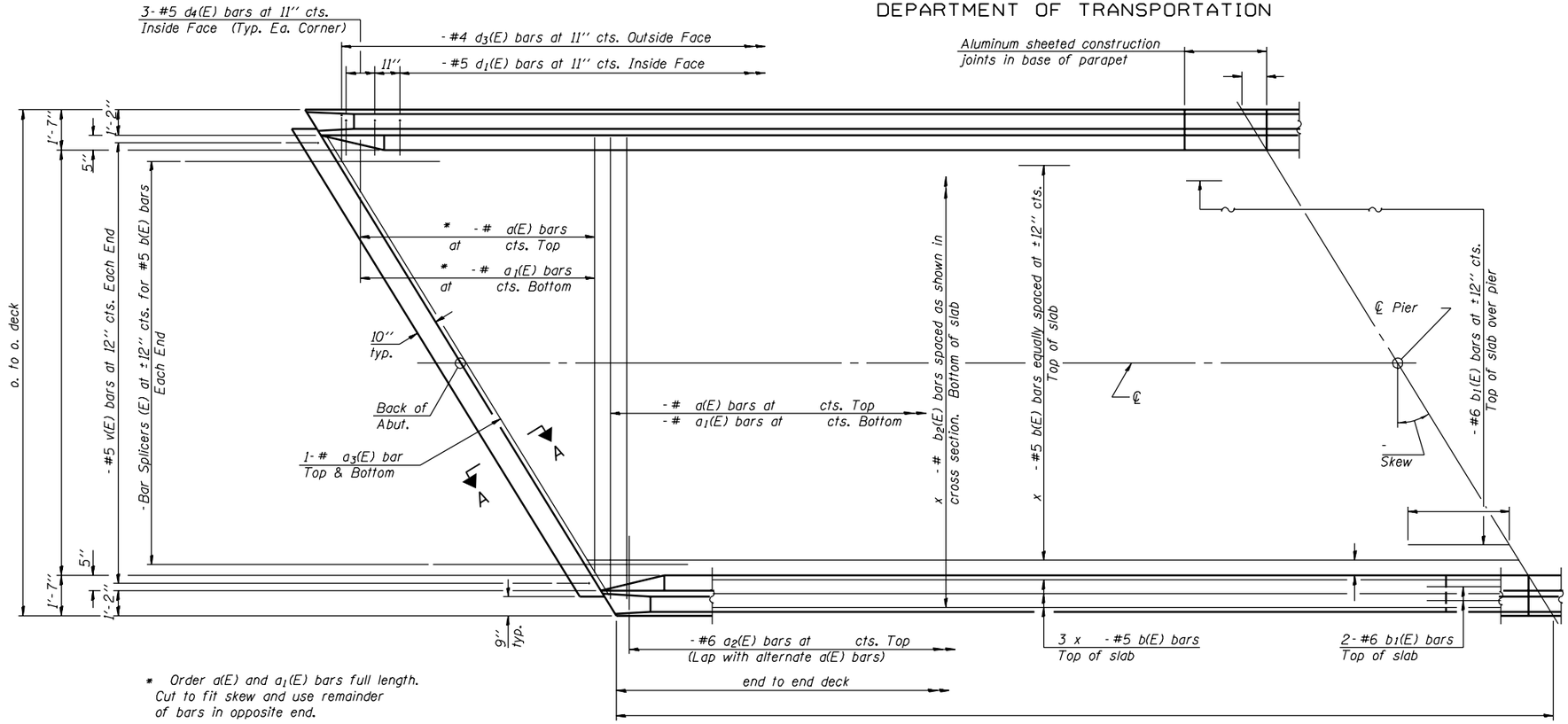
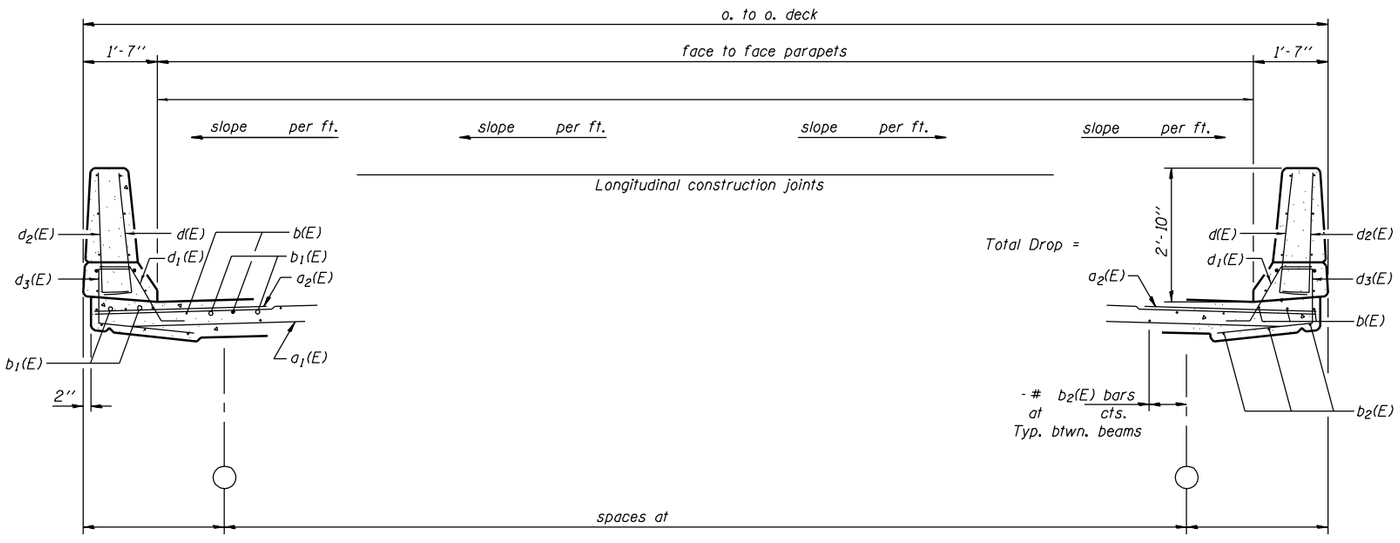
Contract #



* Order d(E) and a_1(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.

HALF PLAN



NEAR PIER — NEAR MIDSPAN

CROSS SECTION
(Looking)

Notes:
See Sheet of for superstructure details and Bill of Material.
Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.
See Sheet of for parapet reinforcement.

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ENGINEER OF BRIDGE DESIGN

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ENGINEER OF BRIDGES AND STRUCTURES

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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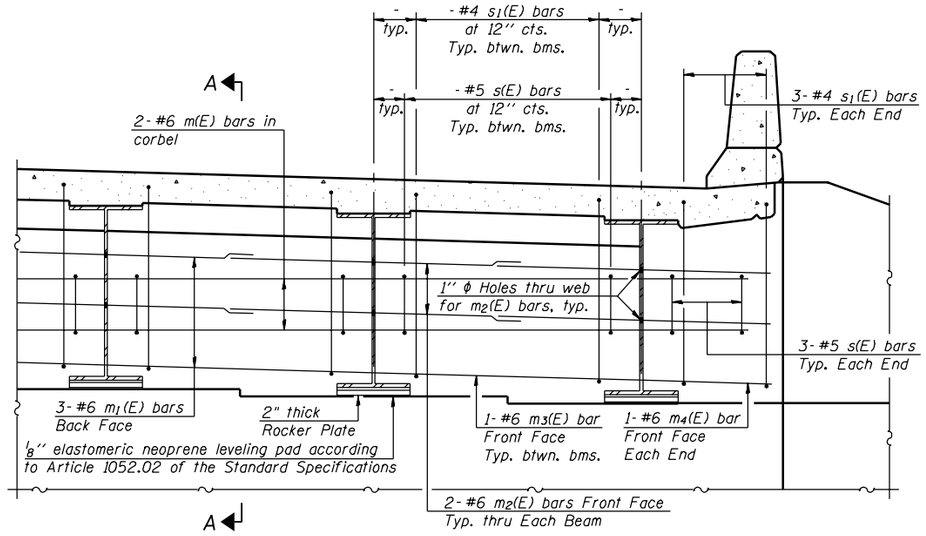
- SHEETS

Contract #

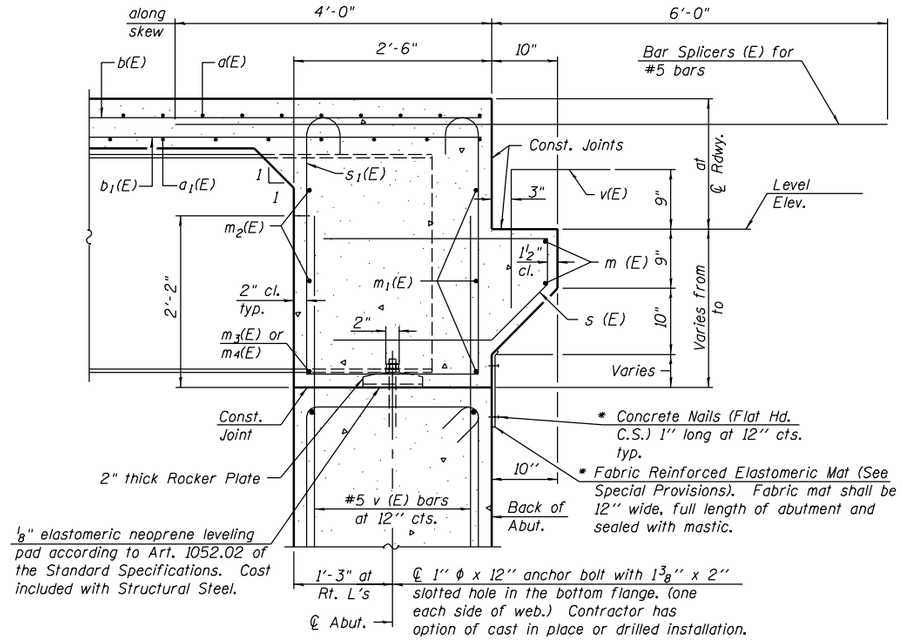


DIAPHRAGM ELEVATION AT ABUTMENT

Notes:
Reinforcement bars in diaphragm are billed with superstructure on sheet of .
Concrete in diaphragm is included with Concrete Superstructure on sheet of .
For details of bars s(E) & s_1(E) see sheet of .
The s(E) and s_1(E) bars shall be placed parallel to the beams. Spacing for these bars shall be at right angles to the beams.
For anchor bolt details see sheet of .

MIN. BAR LAP

#6 bar = 2'-9''



SECTION A-A

Dimensions at right angles to abutment. except as shown.
* Cost included with Concrete Superstructure.

DESIGNED -	- 200
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DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGE DESIGN
	ENGINEER OF BRIDGES AND STRUCTURES

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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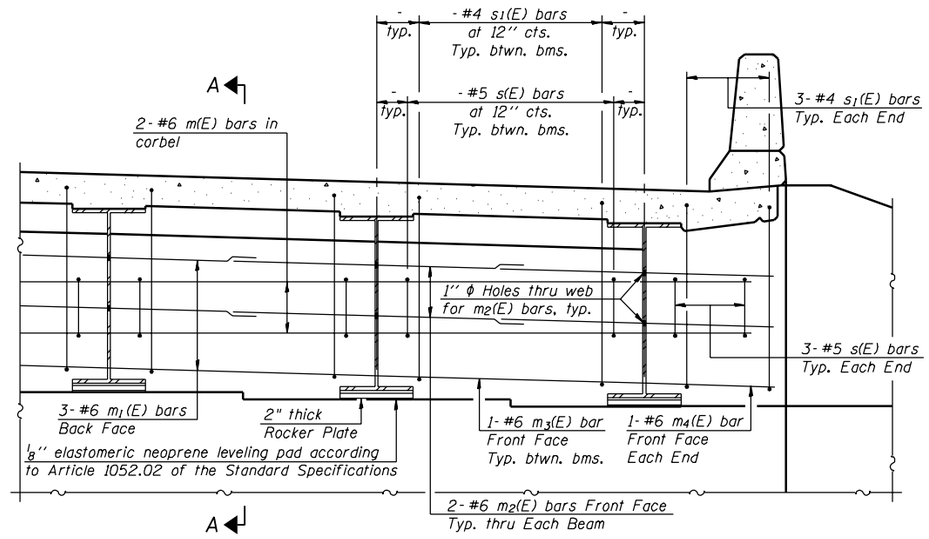
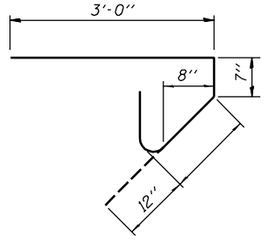
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

Contract #



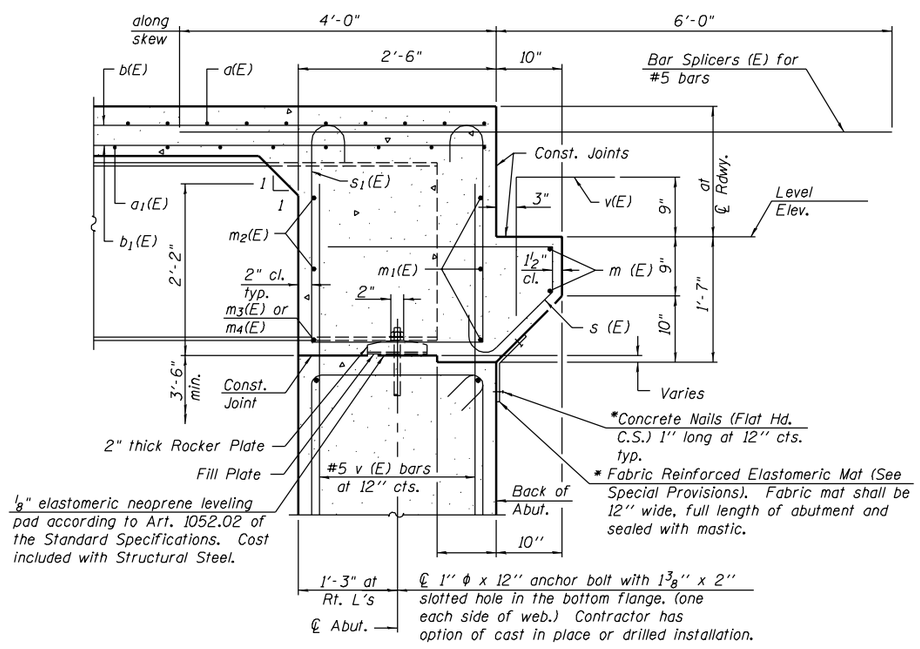
DIAPHRAGM ELEVATION AT ABUTMENT



BAR s(E)

Notes:
Reinforcement bars in diaphragm are billed with superstructure on sheet of .
Concrete in diaphragm is included with Concrete Superstructure on sheet of .
For details of bars s(E) & s1(E) see sheet of .
The s(E) and s1(E) bars shall be placed parallel to the beams. Spacing for these bars shall be at right angles to the beams.
For anchor bolt details see sheet of .

MIN. BAR LAP
#6 bar = 2'-9''



SECTION A-A
Dimensions at right angles to abutment, except as shown.
* Cost included with Concrete Superstructure.

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EXAMINED
ENGINEER OF BRIDGE DESIGN
PASSED
ENGINEER OF BRIDGES AND STRUCTURES

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